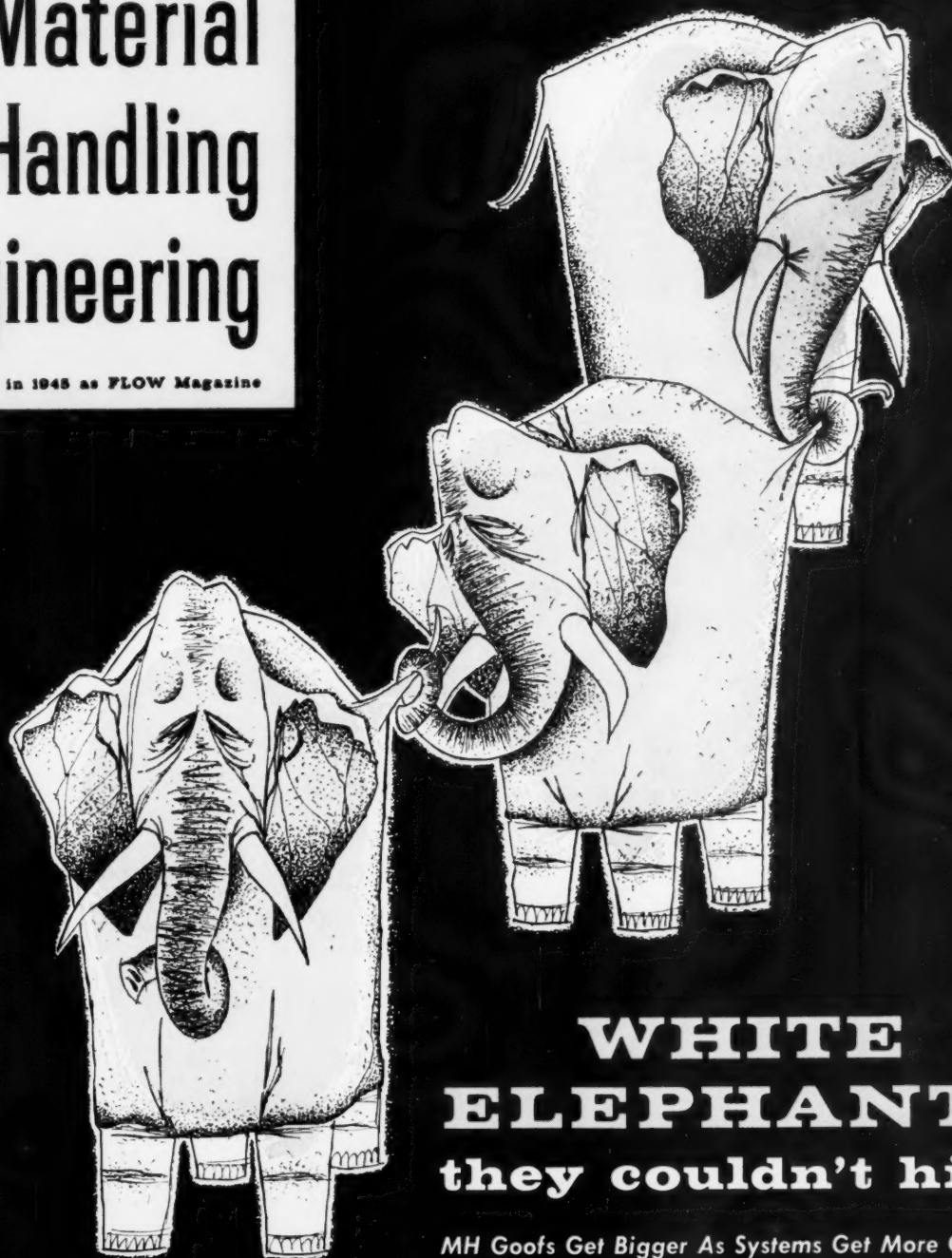


JUNE 1961

Material Handling Engineering

Established in 1945 as FLOW Magazine



WHITE ELEPHANTS they couldn't hide

MH Goofs Get Bigger As Systems Get More Complex

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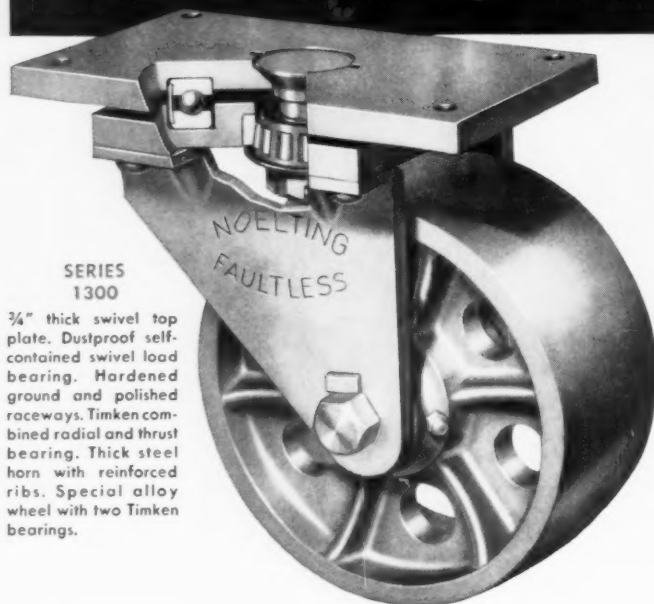
THE MAGAZINE OF MATERIAL FLOW MANAGEMENT

Fight High Distribution Costs	58
Material Handling - a Control Function	62
A Brand New Truck Attachment	66

MOVE THAT HEAVY LOAD ANYWHERE... EASILY

WITH SUPER HEAVY DUTY

Faultless Casters



SERIES
1300

¾" thick swivel top plate. Dustproof self-contained swivel load bearing. Hardened ground and polished raceways. Timken combined radial and thrust bearing. Thick steel horn with reinforced ribs. Special alloy wheel with two Timken bearings.

Dreadnaught Casters move loads up to

7½ Tons
PER CASTER

When it comes to *CASTER STRENGTH* for rolling the big loads along your assembly line, or around your stock pile area, Faultless engineered casters can give a lift to your big production and warehousing problems. Above, a Faultless Series 1300 Swivel Plate Caster and two Faultless wheels in special mountings easily handle a 22,000 lb. Caterpillar Diesel-electric engine with minimum man-power. This is a usual task for the Faultless Series 1300 Dreadnaught Caster.

Super strong HX300 Casters handle loads up to

5 Tons PER CASTER
WITH 8" WHEEL

For surplus strength to roll under cargoes that break down or damage ordinary casters, the HX300 Series, extra heavy duty swivel caster, will fit your specifications. It's precisely engineered throughout and constructed of quality materials to provide a caster capable of easily taking on 10,000 lb. loads, while keeping production lines moving with minimum handling costs.



SERIES
HX300

1" dia. king pin. Thick steel top plate. Self-contained main load bearing has dust guard and grease seal. Timken radial and thrust bearing. 8" or 10" semi-steel wheels with Timken bearings.



ASK YOUR DISTRIBUTOR: Your nearby Faultless Industrial Distributor maintains a substantial inventory of Faultless Casters for immediate delivery. He and one of the strategically located Faultless Sales Engineers are available to work with you on every handling problem in your plant. Both are listed in the phone book Yellow Pages, under "Casters," and the Faultless heading.

Faultless Caster Corporation, Evansville 7, Indiana

Representatives in Atlanta, Baltimore, Boston, Buffalo, Chicago, Cleveland, Dallas, Detroit, Grand Rapids, Greenville, S. C., High Point, Indianapolis, Los Angeles, New Orleans, New York, Philadelphia, Portland, St. Louis, Washington, D. C., Canada: Stratford, Ontario

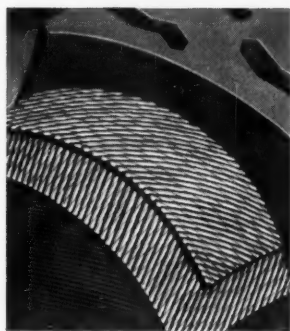
Circle 46 on Reader Service Card





TOUGH!

New STEEL GUARD makes tire-killers a dead issue



Secret sinews making STEEL GUARD virtually punctureproof are these steel cable plies anchored deep in rubber.

Here's an action shot of tire costs going down! It shows Goodyear's great new STEEL GUARD pneumatic industrial tire shrugging off the kind of tire-killers that quickly knock out ordinary pneumatics, boost your tire replacement costs.

STEEL GUARDS blunt the tire destroyers' threats with a built-in puncture-barrier of heavy steel cables crisscrossed beneath the tread. Embedded solidly in the rubber just above the plies, this steel armor extends right up across the shoulders for greater protection.

Look at the STEEL GUARD lugs — thick and

rugged, they form a tread that takes the most punishing blows and provides extra traction in slick going. Don't forget — STEEL GUARD is a pneumatic, which means a smooth ride for cargo and driver, coupled with standout stability and flotation. Get a longer run for your tire dollar — even in foundry and brickyard service—with new STEEL GUARD, the industrial pneumatic with built-in puncture-barrier. It's added proof that lots of good things come from Goodyear. Ask your Goodyear Dealer or write: Goodyear, Industrial Tire Sales, Akron 16, Ohio.

Buy and Specify STEEL GUARD Tires by

GOODYEAR

Steel Guard—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND

Circle 52 on Reader Service Card

USP

WENDWAY

CONVEYS ANYTHING...

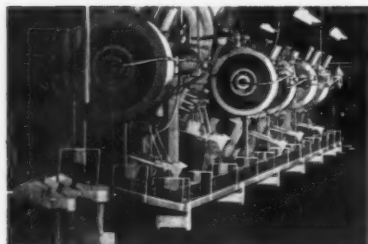
Anywhere!



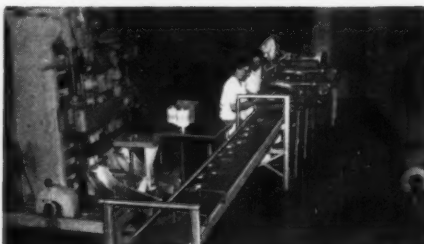
Above: In large mid-western glass plant, this "production line" Wendway system conveys finished filters from assembly and stapling machines to elevated shipping station.



Right: Ceiling mounted Wendway saves valuable floor space and proves excellent for cooling or drying operations.



Wendway easily adapts and installs with existing equipment to speed processing and continuous flow of any industrial products—eliminates handling, storage and equipment.



"Stub" Wendway, a short, single tier unit conveys packages from bag loader through a series of stapling and sealing operations. "Stub" units may be permanent or portable, caster-mounted to suit the need.



A typical package conveyor installation, this three-tier Wendway system extends the full length of the truck loading dock. System is fed by self-powered "roll-away" switch section (center, left).

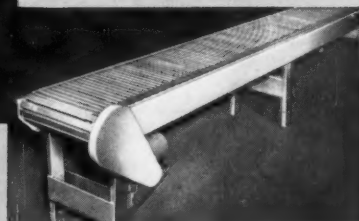
Write Today...

for complete information on USP Wendway Conveyor Systems.



A highly dependable, extremely versatile, adaptable system with greatly increased carrying capacity (70 lbs. per lineal foot).

● WENDWAY SLAT-TYPE CONVEYORS... FOR THOSE HEAVIER, MORE DIFFICULT APPLICATIONS



Available in 24", 30" and 36" standard widths in powered curves or straight sections. Larger widths on special order.



UNION STEEL PRODUCTS CO.

Industrial Conveyor Division
ALBION, MICHIGAN

Circle 127 on Reader Service Card

JUNE 1961

Material Handling Engineering

reader's guide to

volume 16 number 6

Established in 1945 as FLOW Magazine

DEPARTMENTS

- 8 . . . Viewpoint
- 12 . . . Calendar
- 14 . . . News Roundup
- 24 . . . Cost Cutting Ideas
- 48 . . . Product News
- 80 . . . Bulletins, Catalogs & Films
- 106 . . . Associations
- 108 . . . Industry News
- 117 . . . Classified
- 118 . . . Advertisers' Index

WHITE ELEPHANTS THEY COULDN'T HIDE 55

A fable about a not-so-mythical beast who roams the material handling field.

GIANT ORDER FILLER FIGHTS HIGH DISTRIBUTION COSTS 58

A system for picking 85,000 cases automatically.

MATERIAL HANDLING—A CONTROL FUNCTION 62

Fourth Project Upgrade article takes a new look at basic business activities.

PUTTING THE CONTROL CONCEPT INTO PRACTICE 63

A "how-to" approach to material handling as a control function.

A NEARLY UNIVERSAL TRUCK ATTACHMENT 68

An exclusive MHE report on a new vacuum handling system for fork trucks.

FORK TRUCKS DO EVERYTHING BUT TRAMPLE THE GRAPES 69

How narrow aisle trucks expanded their usefulness in the wine industry.

EVALUATION OF WORK STATION LAYOUT 70

The basic qualities of good work stations and how to get the most out of them.

WORK STATIONS CAN BE VERSATILE 73

Clarke Floor Machine Co. uses a system of portable assembly units.

BUILD WITH STANDARD ASSEMBLY STATIONS 74

Some uses of off-the-shelf workplace equipment.

STORING AT RANDOM IN A LARGE YARD 76

Sideloader and overhead crane team up to expedite pipe handling.

STACKER CRANE MOVES ORDERS FAST 78

MH equipment helps metal warehouse give same-day service.



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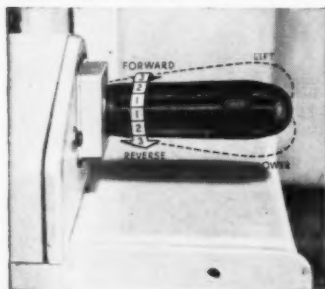


BATTERY REMOVAL TOP OR SIDE. Battery mounted on rollers may be removed from either side. Steering wheel and Quadtrol controller swing back to allow overhead removal or servicing of battery. Takes just seconds. Battery compartment space is extendable to accept a wide variety of battery sizes.

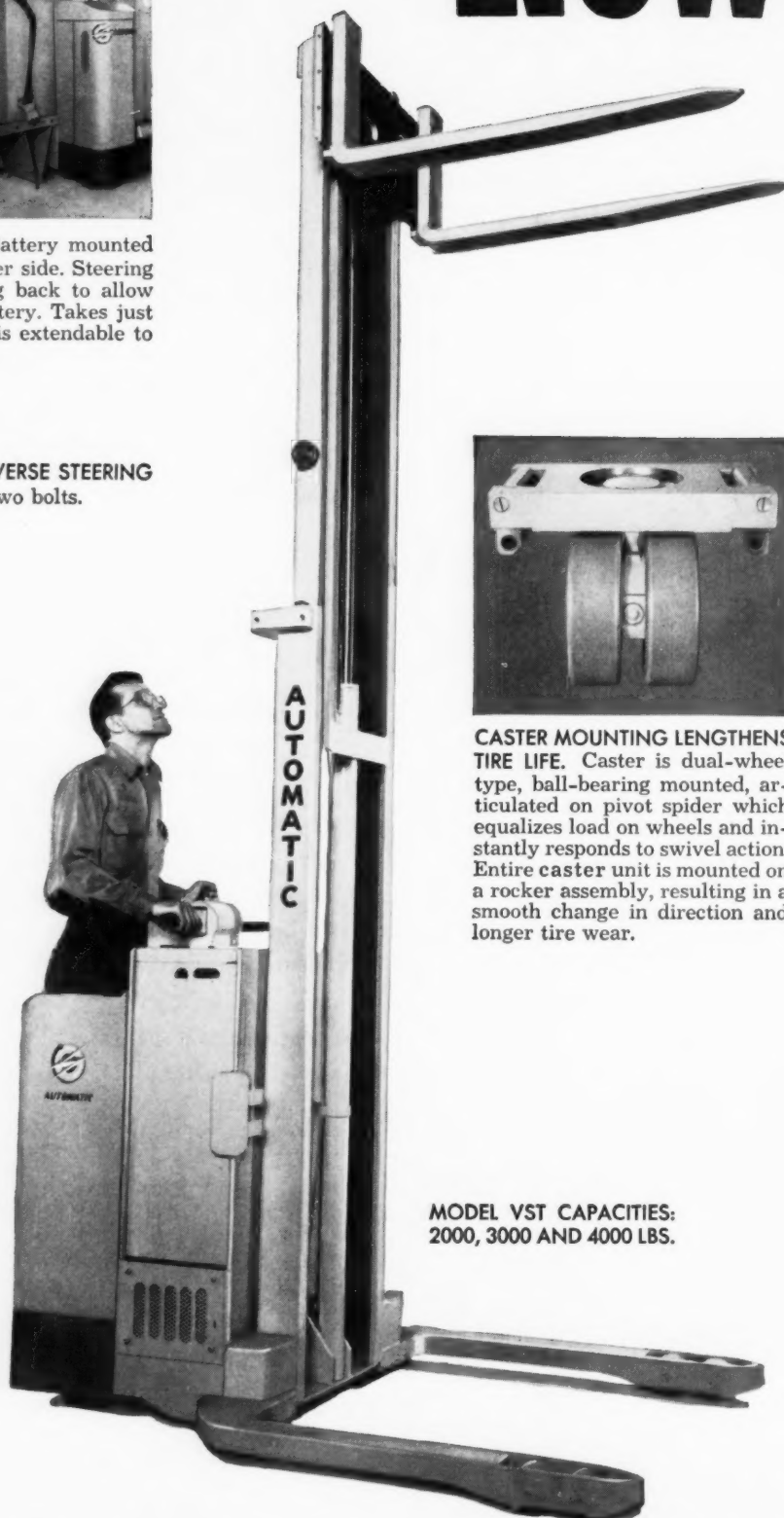
CHANGE FROM AUTOMOTIVE TO REVERSE STEERING IN MINUTES by changing position of two bolts.

SAFE DRIVING IS "BUILT-IN."

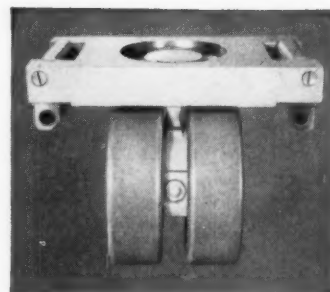
Controls are electrically interlocked to prevent starting or reversing in any but first speed position. Current is disconnected when hydraulic brake is applied and truck cannot be restarted until controls are returned to first speed position. Lift and lowering speed is infinitely controlled by manually operated hydraulic valve for smooth, safe handling of loads.



QUADTROL COMBINES SPEED AND LIFT CONTROLS IN ONE UNIT FOR EASIER DRIVING. Control of three speeds forward and reverse plus lifting and lowering of the forks is unified in one handle. Operator has full control of truck and load at all times because his hand need never leave the control. The horn button can be actuated by thumb while hand operates Quadtrol. Driving is smoother, safer and maneuvering is faster because the driver can easily control lift and travel functions simultaneously.



New

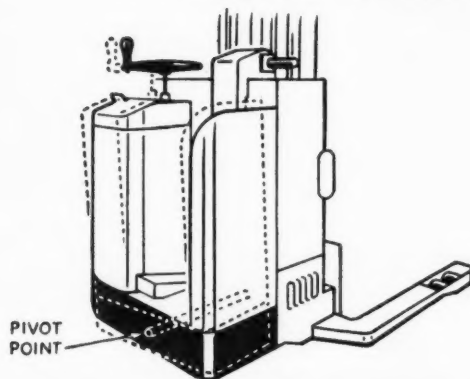


CASTER MOUNTING LENGTHENS TIRE LIFE. Caster is dual-wheel type, ball-bearing mounted, articulated on pivot spider which equalizes load on wheels and instantly responds to swivel action. Entire caster unit is mounted on a rocker assembly, resulting in a smooth change in direction and longer tire wear.

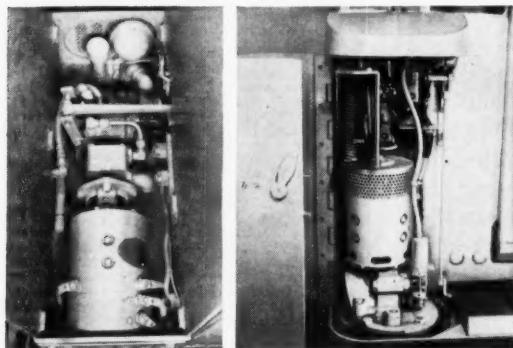
MODEL VST CAPACITIES:
2000, 3000 AND 4000 LBS.

feature-packed **AUTOMATIC** Transveyor

drives better, services easier, works longer



KNEE ACTION FRAME ASSURES STABILITY UNDER ALL CONDITIONS. Straddle arms pivot independently of drive unit, preventing frame distortion and instability on uneven floors. Traction is improved because all wheels are always in contact with floor.



ACCESSIBILITY OF PARTS SIMPLIFIES SERVICING. Rear cover swings out to put drive motor, electrical components and brake within easy reach for servicing. Hydraulic components are readily accessible with battery removed. Note short, direct hydraulic lines which increase efficiency and lessen need for maintenance.

AUTOMATIC Transveyor Model VST has set a new standard for easy driving, serviceability and lower operating cost for narrow aisle equipment. Its simplified design substitutes a single operating lever for a whole cluster of controls. A compact, easily accessible hydraulic system makes servicing a snap. Battery can be removed from either side of truck or by an overhead chain hoist in a matter of seconds. The knee action frame permits all wheels to contact the floor at all times, insuring maximum stability. These are just a few of the features that enable the Model VST to work harder, longer, at a lower operating cost. Model VST is available in 2000, 3000 and 4000 lbs. capacities. Get all the facts—mail coupon today.



AUTOMATIC

AUTOMATIC TRANSPORTATION COMPANY

Division of The Yale & Towne Manufacturing Company

141 West 87th Street, Dept. H1, Chicago 20, Ill.

Send for full details NOW!

- ☐ Please send complete specifications and feature data on new Model VST Transveyor.
- ☐ Please send "NEW DIMENSION" booklet which discusses narrow aisle truck applications and available types.
- ☐ Please have your representative call me.



Name _____ Title _____

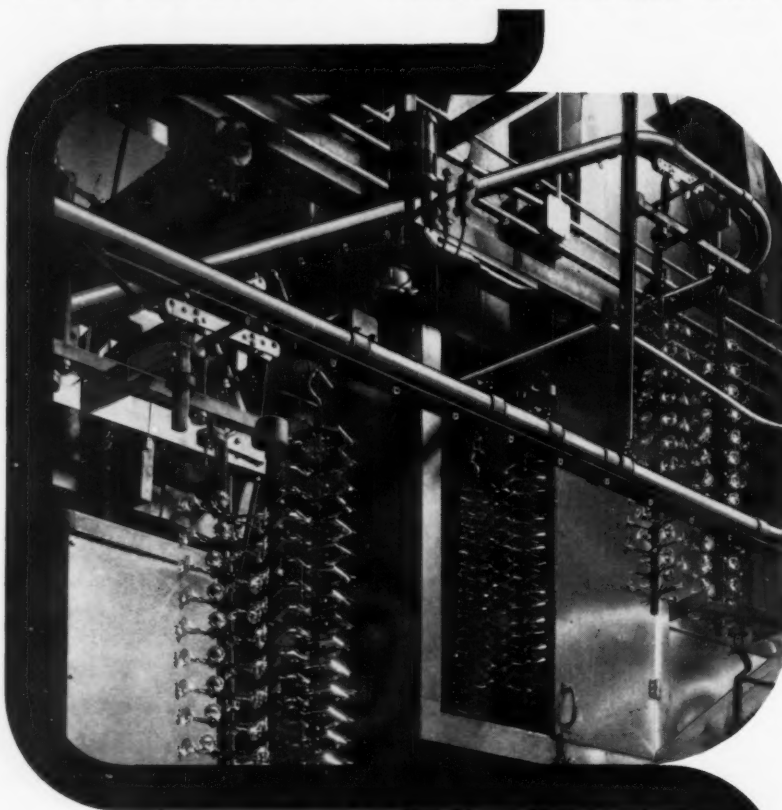
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PRODUCTION UP—REJECTS DOWN 25%



Chainveyor's power and free overhead conveyor system, installed at Jaybee Mfg. Corp. in Los Angeles, levels work flow and tightens quality control.

Stamped parts are racked on special hangers and then loaded on free Chainveyor lines that move towards a single powered track. Loaded hangers from the free tracks are automatically switched into the power line as needed, and move through all finishing processes to inspection and shipping departments. Finishing procedures are regulated by one operator at a master control station along the conveyor path.

Power and free combinations of this type automatically adjust to work load requirements and increase efficiency from personnel and equipment.



For details on low cost Chainveyor systems engineered for all types of industry write:

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OVERHEAD
CONVEYOR
SYSTEMS

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PUBLISHED monthly and copyrighted 1961 by The Industrial Publishing Corp. Accepted as a controlled circulation publication at St. Joseph, Mich. Printed in U.S.A. Return form 3579 to 812 Huron Road, Cleveland 15, Ohio.

THE INDUSTRIAL PUBLISHING CORP.

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INDEXED by Engineering Index, Inc.

MICROFILMED copies of Material Handling Engineering are available from University Microfilms, 313 North First Street, Ann Arbor, Michigan.

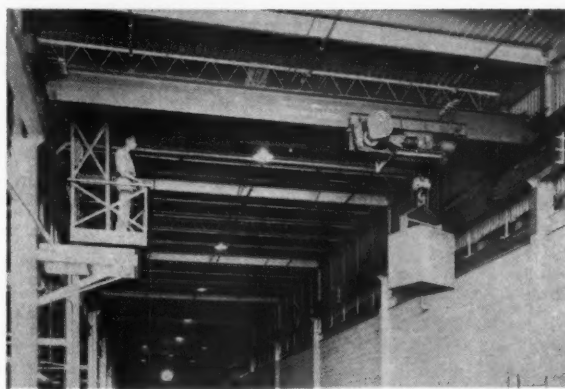
MATERIAL HANDLING ENGINEERING



Bridge Center Drive Cross Shaft Couplings Cross Shaft Bearings Current Collectors Push Button Station End Trucks Magnetic Control

R&M "Build-It-Yourself" CRANE COMPONENTS

Now, save up to 30% by using R&M's new high-quality components to build your own rugged, hard-working crane in spans through 50 feet, capacities through ten tons! R&M supplies all parts, except structural steel and drive shaft (obtainable locally). Four types of end truck assemblies meet every service requirement—motor-driven or hand-gear operation, top running or underhung. Center drive assembly provides two gear reductions, motor, magnetic disc brake, choice of single or variable speed or accelerating fluid drive. Other R&M components include magnetic controls, cross shaft bearings and couplings, current collectors, push button station. Complete assembly drawings furnished. Write for Bulletin 900-5MH

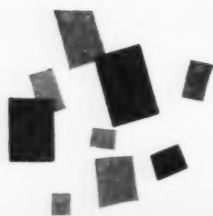


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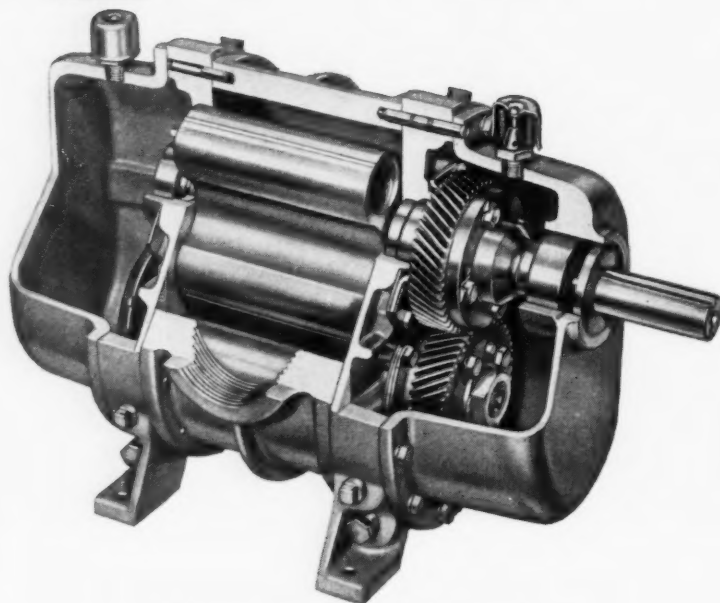
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NEW



Standard Duty Blowers-Series 16



**Engineered specifically for
pneumatic conveying applications**



The new Standard Duty M-D Rotary Positive Blower Series 16 combines all of the ruggedness and dependability of ductile iron with the flexibility, lighter weight and lower cost of aluminum blowers.

Eleven models ranging from 50 CFM of air with pressures up to 12 PSIG or up to 12" HG vacuum have been specifically designed for material handling system applications.

Send us your air or vacuum requirements. We'll be glad to make recommendations.

For full information, write

M-D BLOWERS, INC.

Racine, Wisconsin



A SUBSIDIARY OF MIEHLE-GOSS-DEXTER, INC.

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VIEWPOINT

Use Consultants Right

SIR:

Your recent article, "Exposing The Phony Consultant" describes how to recognize and select a competent consultant. This is only the first step in securing profitable assistance in solving operating problems.

Today's business operations require specialized knowledge and skill in many diverse areas. It would not be practical for most firms to continually maintain a staff of experts; hence, a consultant may be called in to apply the fruits of his experience whenever needed.

A consultant has usually had experience solving similar problems sometimes in different industries. Many materials handling techniques may be just as profitably utilized by companies whose end products are completely different. It is the objective viewpoint of an engineer who is not saddled by "how we have always done the job" that makes the consultant so valuable.

The fact that businessmen have found real value in the use of consultants is proven by the growth of the profession. The total dollar volume of fees earned by management consulting firms is well over \$200,000,000.

The success of a project places a responsibility on the client as well as the consultant. The article in the March, 1961 MHE describes how to select a competent consultant, but it is just as important that company management recognize how it can help to insure the success of the consultant's assignment.

It is imperative that a mutual understanding be reached as to what is to be accomplished and the approach to be followed. It is then necessary that all the information required be made readily available. A reputable consultant will keep confidential all information about the operation of your business.

The following situations are encountered occasionally when a company utilizes a consultant's services for the first time:

Case I — A client may try to simplify his operations and not mention future plans for introducing new products. He may express complete satisfaction with certain phases of his opera-

Continued on page 10

MATERIAL HANDLING ENGINEERING



**The pace-setting combination
that boosts production 20% —**

Only
HYSTER® has it!

NEW HYSTER SPACESAVER cushion tire trucks of 6-7-8-10,000 lbs. capacity give you a combination of production features never before offered in *any* lift truck.

MONOTROL CONTROL—Completely foot controlled Hystamatic transmission—for easy, natural driver control; safe, rapid handling; highest production.

TWO-SPEED HOIST—Fully automatic system for fast lift with full load—double speed with partial loads.

FULL FLOW—FULL TIME HYDRAULIC FILTER—eliminates down-time caused by dirty hydraulic oil. Cuts maintenance costs.

Ask your Hyster dealer to demonstrate these and other exclusive features that set the engineering pace for *all* lift trucks. Call him soon or write for literature.

INDUSTRIAL TRUCK DIVISION—Lift trucks, mobile cranes, straddle carriers
TRACTOR EQUIPMENT DIVISION—Construction and logging equipment
MARTIN TRAILER DIVISION—Heavy machinery hauling trailers
INTERNATIONAL DIVISION—Overseas manufacturing, sales and service
Manufactured in: Portland, Oregon (Home Office) • Danville, Ill. • Peoria, Ill. • Kewanee, Ill.
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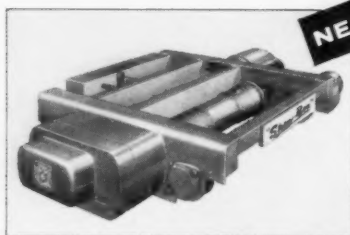
Circle 55 on Reader Service Card

Something New In Cranes

...at no extra cost!

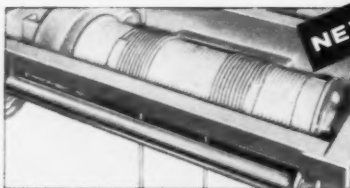


New standards of quality and modern low headroom design are established in these Series "D" Cranes. They are built for regular industrial service — yet have many of the advantages priced into the most expensive cranes.



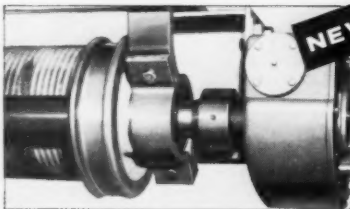
NEW TROLLEY FRAME

All steel, welded into a single unit and integrated with the hoisting machinery. Far stronger than the mounted monorail type of unit. Compact design provides high hook lift and close end approaches. Load and motor brakes positive acting; no back drift of hook. Trolleys available for a variety of speeds, lifts, and all standard currents.



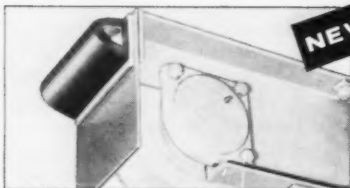
NEW ROLLED STEEL DRUM

A strong weldment — not a casting. Right and left hand deep-machined cable grooves provide true vertical lift at all times. No overlapping of cable on the winding drum. The drum and load sheaves have diameters at least 24 times the hoist rope diameter. Long cable life assured.



NEW FLAME HARDENED WHEELS

... on trolley and bridge are made of forged steel. All wheels are double flanged, with treads and flanges flame hardened to 550-600 Brinell — nearly as hard as tool steel. Accurately machined to close tolerances, tapered bridge wheel treads assure easiest bridge movement. You can count on long wheel life.



NEW RUBBER BUMPERS

... tough, resilient. Take jolting impacts far better than wood — absorb shocks and take the strain off end trucks and bridge members. Other standard bridge features include rigid box section construction, heavy duty brake, motor and drive unit, and a checkered steel non-skid platform.

There's still more These Shaw-Box Series "D" Cranes are built in capacities from 3 to 25 tons. Models for floor and/or cab control. Spans to 80 feet. Pre-engineered components save you money and speed delivery. Write for catalog.



SHAW-BOX CRANES

A product of

MANNING, MAXWELL & MOORE, INC.

Shaw-Box Crane & Hoist Division • Muskegon, Michigan

In Canada: Manning, Maxwell & Moore of Canada, Ltd., Galt, Ontario

Circle 76 on Reader Service Card



VIEWPOINT

tions, although they may be actually inefficient. He will resent digging below the surface to uncover the real problems and feel that the consultant is trying to to build up his fee. Unless future possibilities are evaluated and provided for, the installation will soon be outmoded.

Case II — Since he is paying for a service, the client will want to get his full money's worth. Once the project is undertaken, he may impose additional requirements which complicate the work. Many of these restrictions are needless and will only delay the completion of the project.

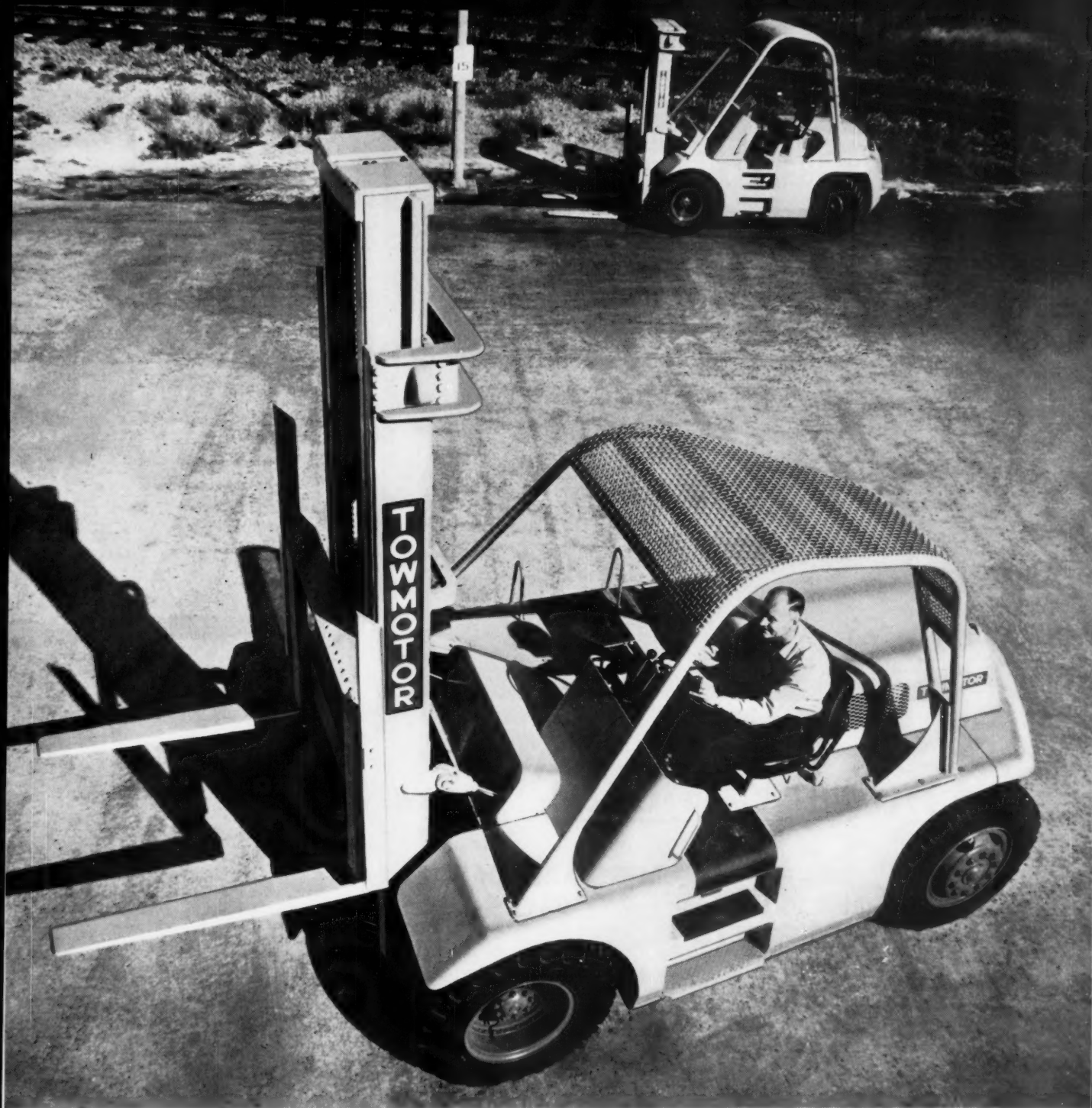
Case III — Development of the most efficient methods of materials handling and plant layout are continually hampered when the secondary line of supervisors continually raises objections for solely "political" reasons. Information is sometimes distorted as the foremen attempt to further their ambitions or project their present status.

These situations are not always detectable when they occur, but will result in a job that appears poorly done and/or too expensive. Full cooperation is the responsibility of both consultant and client. Even the most carefully engineered system will fail unless it is given a fair opportunity to work properly and management wants it to succeed.

I would like to take issue with the emphasis you place on being a "registered engineer." New York State, which is one of the first states to license engineers, has no qualifications for an "industrial engineer" per se. Originally set up for civil engineers, the procedure has been expanded to include mechanical and electrical engineers as well. To be a competent material handling engineer requires experience and proficiency in skills not necessary in the practice of other branches of engineering; obtaining a certificate of registry requires mastery of techniques that may be only indirectly helpful. So that being a registered engineer is definitely a plus factor, but it should not be considered a requirement of a materials handling engineer.

JERRY LE BOYER
Le Boyer, Krasny & Associates
Brooklyn, N.Y.

MATERIAL HANDLING ENGINEERING



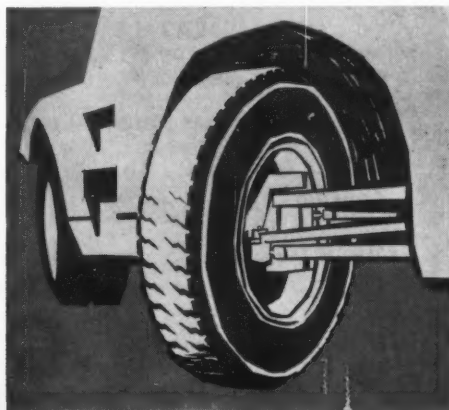
TOWMOTOR'S ON THE MOVE

—leading the way with big fork lift trucks that offer new mass-handling techniques. Heavy duty trucks with “unitized” frame and body for a long lifetime of low-cost maintenance. Lift trucks engineered for extra road and load visibility, better maneuverability, easier operation. Move more with Towmotor fork lift trucks—made only by TOWMOTOR CORPORATION, CLEVELAND 12, OHIO.

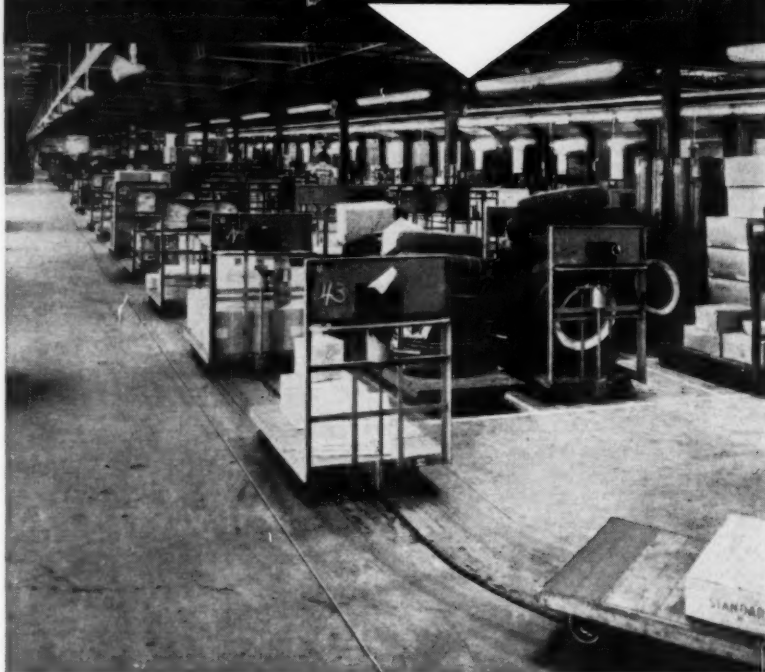


Circle 122 on Reader Service Card

Pivot-action steering axle is an outstanding feature of new Towmotor “Monarch” Series fork lift trucks (above), with load capacities up to 24,000 pounds. Fast, smooth maneuvering results from Monarch’s wider track axle pictured below. It pivots in rubber to absorb road shocks.



IF YOUR FREIGHT IS **HERE** TODAY . . .



Photo, Courtesy of Lyons Transportation Company

. . . IT WILL BE **THERE** TOMORROW

**150 CARGO CARRIERS ARE LOADED
AND UNLOADED EVERY DAY IN
THIS MODERN TERMINAL**

It is accomplished with the aid of a Mathews-built Tow Conveyor System pulling floor trucks around a 420-foot, 70-door bay area at 140 feet per minute. The continuous chain conveyor, contained entirely below the level of the floor, provides a smooth flow of freight to and from cargo carriers without delay, confusion, or costly rehandling.

Write today for Bulletin #LT 61.



MATHEWS CONVEYER COMPANY

GENERAL OFFICES ELLWOOD CITY, PENNSYLVANIA

PACIFIC COAST DIV. MATHEWS CONVEYER COMPANY WEST COAST,
SAN CARLOS, CALIFORNIA

CANADIAN DIVISION . MATHEWS CONVEYER COMPANY, LTD., PORT HOPE,
ONTARIO.

MATHEWS
Over Fifty Years of Leadership in Mechanized Handling

Circle 79 on Reader Service Card

CALENDAR OF EVENTS

June 1-3

MHEDA Seventh Annual Convention
Denver-Hilton Hotel
Denver

June 11-23

Industrial Management Center
Courses
Lake Placid Club
Essex County, N.Y.

June 13-16

Cornell University Industrial
Engineering Seminars
Ithaca

June 21

Meeting
Electric Overhead Crane Institute
Detroit Athletic Club
Detroit

June 28-30

Joint Automatic Control Conference
The American Society of Mechanical
Engineers
University of Colorado
Boulder, Colorado

July 18-20

Western Plant Maintenance &
Engineering Show
Pan Pacific Auditorium
Los Angeles

September 18-23

6th Annual Midwest Work Course on
Plant Layout and Facilities Planning
The University of Kansas Extension
Center
Kansas City, Kansas

November 7-10

Packaging Machinery Manufacturers
Institute Show
Cobo Hall
Detroit

MATERIAL HANDLING ENGINEERING



Eight feet of space lets the 922 come through with fast clean-up work. Notice the operator sits high and clear, has excellent visibility all around. Lift arms and the load are well in front of him. He's safe and confident and so are others working around him.



Cleaning out bays around open-hearth furnaces, one of many jobs the Cat 922 wheel loader does at this steel mill. Cat Diesel Engines power the loader line, use low-cost furnace oil. Gasoline engines are optional on the 2 smaller models.

For varied jobs—for dependability

SOUTHWESTERN STEEL MILL PICKS A CAT 922 LOADER

Those bold, black letters are pretty familiar around this mill's open hearths. They've used Caterpillar track-type loaders since 1956—ripping out and loading slag, handling coal, etc. Last January they needed a mobile loader. Wheels were the only answer. They picked the new 1¼-yd. Cat 922—a choice indicated by their 6 years of experience with the long-term economy of Cat track-type loaders.

The 922 has put out the performance they expected—or even a little better. It's busy cleaning out around furnaces, stockpiling ore, leveling fill on a new storage yard, maintaining plant roads and cleaning around buildings . . . tough work, light work, tight work.

The 80 HP, nimble-wheeled 922 can work in 8-foot aisles, under 8¼-foot ceilings with safety and precision. Power shift transmission, power-boosted steering and brakes make the operator's commands take effect fast. The basic design of the 922, with the lift arms and the load ahead of the operator, gives him excellent visibility, confidence and safety.

There are 3 Cat wheel loaders, 80 HP, 105 HP, 140 HP (flywheel ratings), with the same wide-open design, same high production features. Your Caterpillar Dealer will be happy to show you the Cat loader for your material handling work. Call him soon.

Caterpillar Tractor Co., General Offices, Peoria, Illinois, U. S. A.



Anywhere in the plant you're likely to see the 922 handling another job. Moving heavy ore up to the railroad crane is just another easy chore for the 922. Bigger production needs can be met with Cat's 944 or 966 loader.

CATERPILLAR

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

**CAT LOADERS
FOR VERSATILITY
AND PRODUCTION**

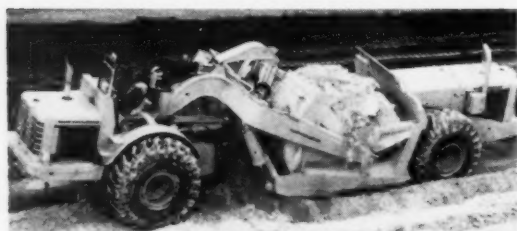


NEWS

ROUNDUP

Dealers view construction line

ALLIS-CHALMERS presented a Power Parade of construction machinery to dealers from 182 cities in the United States and Canada. Held in Springfield, Ill., the king-sized show included more than 50 units, from 6,000 to 95,000



lb. Some 1,000 watched tractor shovels, tractor loaders, crawler tractors, graders, and scrapers pass in review. Largest piece was this experimental dual engine motor scraper (photo), powered by two 340 h.p. diesel engines. It can move 40 cu. yd. heaped, at one time. This all-hydraulic unit weighs 95,000 lb., can travel at 30 m.p.h. Among new models presented were a tractor shovel designed for steel mill slag removal and a tractor loader with 25,000-lb. lifting capacity.

New measurement for handling efficiency

A NEW TOOL was added to the material handling man's kit by the Yale Materials Handling Division of the Yale & Towne Manufacturing Co. in Philadelphia last month.

At a press conference for business publication editors, the company introduced its recently published "Management Guide to Productivity." The book was prepared by Yale & Towne in cooperation with Professor James R. Bright of the Harvard University Graduate School of Business Administration. Its purpose is to aid management in exposing unwarranted handling expense. It also provides a systematic method for MH men to present handling efficiency data to management.

The productivity guide is based on seven basic efficiency cost ratios:

Material Handling Labor Ratio: measures the proportion of a company's labor force that has been assigned to MH activities.

Direct Labor Handling Loss Ratio: gives a general indication of the direct labor cost by

production workers performing handling functions.

Movement/Operation Ratio: examines the efficiency of handling moves in relation to production operations.

Manufacturing Cycle Efficiency: checks the efficiency at which the plant operates as a system for putting material through processes.

Enclosed Space Utilization Efficiency: measures how effectively the enclosed space is used.

Equipment Utilization Ratio: shows the extent to which production equipment is being used to its full potential.

Aisle Space Potential: points out opportunities for acquiring additional production space.

You can get a copy of "Management Guide to Productivity" by circling No. 434 on the Reader Service Card in this issue. Be sure to see the next issue of MATERIAL HANDLING ENGINEERING for an editorial evaluation of the Yale & Towne efficiency measurement system.

Cargo Cage Committee meets

MEMBERS of the Caster and Floor Truck Manufacturers Association and the National Wooden Box Manufacturers Association met in a joint session with representatives of the Regular Common Carrier Conference last month. Reason for the meeting: a progress report on development of a cargo cage for handling LTL shipments. As reported by Chairman Vic Palisano, the Cargo Cage Committee has outlined various needs which should be incorporated in the design:

- Two sizes: 44 x 45 and 44 x 60 (or 44 x 54).
- Should have removable sides.
- Must have hold-down device.
- Needs low clearance from floor.
- Must have 4000 pound capacity (including safety factor).

Next meeting of the Cargo Cage Committee is scheduled for June 5 in Chicago.

Anti-smog article cites Oxycat

LASHING OUT at "The Silent Killer That Stalks Our Streets," the April 1961 issue of True Magazine takes a strong stand in favor of

Automatic Paper Handling Systems



Three views of the R-W Paper Handling System at the Walding Kinnan and Marvin Company, Toledo, Ohio.

...another versatile application of R-W "Zig-Zag" Continuous Power Overhead Conveyors

This economical R-W Paper Handling System transports bills of lading and special delivery orders, etc. from point of origination to the order department, on to the IBM department and finally to the shipping room. Papers are securely transported via special R-W carriers designed to permit fast, easy loading and unloading. R-W Paper Handling Systems are available in a variety of pendent or mailbox type carriers to meet specific requirements. Carriers can be equipped with a selector-device to permit automatic dispatching and/or automatic un-

loading. This is an ideal conveyor for a multi-station paper handling system.

R-W Paper Handling Systems can be ceiling hung or floor supported . . . the conveyor system can be encased for neat appearance. R-W Paper Handling Systems offer economical application in department stores, office and commercial buildings, hospitals and industrial buildings. Versatile, flexible R-W "Zig-Zag" Conveyors are ideal for small special purpose conveyors or huge "door-to-door" plant wide systems. In either case they offer a time-proven method of reducing materials handling and overall manufacturing costs.

Write today for complete information . . . learn how R-W "Zig-Zag" Conveyors can save you time and money. Request your free copy of Catalog A-93R.

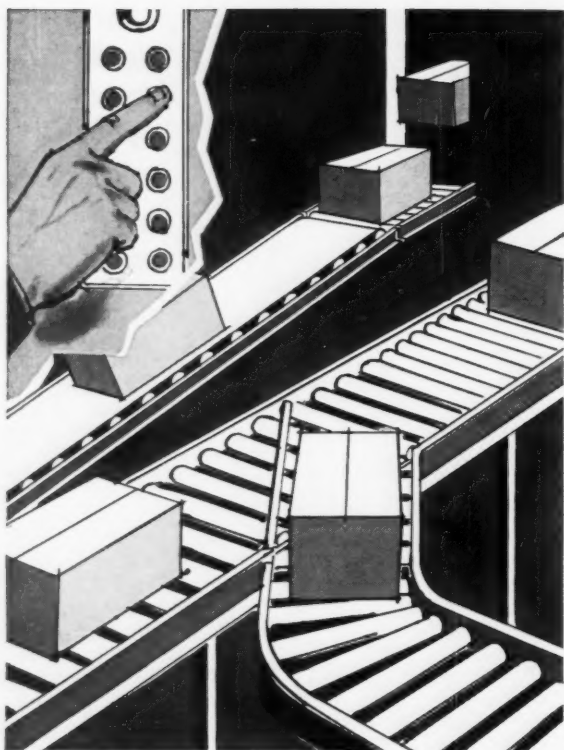


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MATERIALS HANDLING DIVISION

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CONVEYORS DO MORE JOBS WITH VERSATILE MAITROL

Conveyors almost think for themselves when they're equipped with **MAITROL***, the compatible magnetic control system.

MAITROL automatically dispatches materials. It selects and assembles items from a storage conveyor or from bulk material hoppers. It is compatible with virtually any conveyor scheme using any number of stations in any combination of vertical and horizontal applications. No wiring between stations.

MAITROL can be actuated by pushbutton, dialing, key punch or pre-set programming. **MAITROL** is unaffected by dirt, grease, light, temperature or electrical interference.

WHATEVER YOU HANDLE — mechanical parts, cartons, paperwork, mail, books, bulk materials—**MAITROL** may well be able to speed your operation and save you money. Why not find out?

*Registered U. S. Patent Office

TECHNICAL INFORMATION on the **MAITROL** system is free for the asking. It shows typical uses in product assembly, order filling and paperwork distribution. Write today.

Maico electronics inc.

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NEWS ROUNDUP

exhaust and smoke purifiers. Authors Myron Stearns and Max Gunther warn of insidious air pollution that may cause lung cancer, lead directly to death. A workable solution, they contend, is universal use of air purifiers such as those made by the Oxy-Catalyst Co. They say these can go on auto exhaust systems, much the same as on fork trucks. The article goes into the history of the company and its founder, Eugene J. Houdry.

Offers profit sharing plan

THE MATERIAL HANDLING EQUIPMENT DISTRIBUTORS ASSOCIATION offers to help members set up a profit sharing plan for employees. The plan is being discussed this month at the MHEDA Convention in Denver. MHEDA will develop a proposal for each interested company, aided by the National Securities & Research Corp. Find out more by writing William R. Noble, 1028 Connecticut Ave. NW, Washington 6, D.C.

The National Training Center. This month's course at the MHEDA National Training Center will start June 19. Topic: Paper Industry Distribution Material Handling. Next course will start July 10, on Department Store Material Handling. Get full details from Director Harry Freeman, 61 Narragansett Ave., Newport, Rhode Island.

Five-year equipment guarantee

NUTTING TRUCK AND CASTER CO. provides a 5-year written guarantee on its material handling equipment. The customer will get a card with a detachable post card to register his guarantee. The firm says it will replace without charge any items found defective in workmanship or materials which fail in normal service—for five years after delivery.

The man and his machine

DESIGN MACHINERY with men in mind. If you wait until the production stage, it's too late. This was the advice of Viscount Hailsham, minister for Science, at a London conference of Ergonomics in Industry. Ergonomics is the study of man in relation to his working environment. Lord Hailsham said it's often the worker who is the limiting factor with new machinery. The worker may find complex tasks, speed of work, or unrelenting vigilance impose too great a strain or lead to costly error. Therefore, he advised, consider the man and machine together and design a unit to match the limits of both.

MATERIAL HANDLING ENGINEERING

Project Upgrade takes over the speaker's platform and MH men hear advice on managing material flow.

PREPARE FOR A BRIGHT FUTURE

WE ALL WANT better jobs, higher pay, more prestige, better working conditions. To get them, material handling men may have left the field. This no longer is necessary, because material handling is getting more and more recognition. You can upgrade yourself in the field, maybe advance to the top industrial rung. (See page 62 in this issue.)

That's the idea behind our Project Upgrade articles, recognizing the coming of a new position in material handling. We call it "Manager of Material Flow." He's in charge of material all the way, from receiving through distribution.

That's also the idea behind a Project Upgrade Seminar we held April 28 in Cleveland. We invited Northern Ohio material handling men we felt were interested in better jobs.

The seminar opened with a welcome from Edwin M. Joseph, executive vice president, The Industrial Publishing Corp. Moderator was Editor Bernard I. Knill, MATERIAL HANDLING ENGINEERING. Here are the topics and speakers:

Economics and Theory of Controlling Material Flow



E. RALPH SIMS JR.
*consulting management
engineer
and
MHE consulting editor*

HE SAID THE APPLICATION of strict inventory management and sound scheduling frequently eliminates much material from the pipe line. Higher flow and lower volume make for lower handling costs, reduced dollar lockup. To increase effectiveness of control, Sims suggested use of highspeed communications, computers, data processing, rapid transportation, and good material handling equipment.

"The total effect of advanced techniques is to shorten the lead time between stages of the system, thus reducing the amount of material in being, in transit, and in plant," said Sims. "This higher velocity movement develops a lower total investment, faster reaction time, better customer service, and a more useful production schedule."

The Management Viewpoint on Control of Material Flow



CLIFF D. HEATON
*manager, manufacturing services
Electric Appliance Division
Westinghouse Electric Corp.*

HE DISCUSSED the buying of equipment, followed with the planning and control of facilities expenditures. Then he told of outstanding material handling and management control at his Columbus plant.

1—The press shop was changed from a well-

Continued on page 18

DISCUSSING the first speech during a coffee break are (l to r) Hank Jalowiec and Nick Defazio, both of Timms Spring Co.; John C. Radebaugh, General Industries Co., and Glessner Collins, also of Timms.



TWO ASSOCIATION presidents meet during the break. They're Al Masters (left), Ohio Rubber Co., president of Cleveland Chapter, American Material Handling Society, and Ed Patrick, Baker Industrial Trucks, president of NE Ohio Chapter, Society of Packaging and Handling Engineers.

NEWS ROUNDUP

defined manual control system to telecontrol. In the first year, they saved nearly the whole cost of the installation, he said.

2—Automatic fabrication assembly increased the 8-hour shift capacity from 600 shells to 1,100.

3—Reducing major assembly lines from three to two, increasing their length 30 ft. each, plus other adjustments, resulted in 50 percent more productivity.

4—Automating the cartoning produced direct labor savings of 17 cents a unit.

5—A separate supply depot gave them more than 600,000 sq. ft. of floor space, about four times as much storage as before the depot was built. It's a distribution center now for all Westinghouse appliances.

Advanced Theoretical Techniques to Control Material Flow



DR. MELVIN SALVESON

*president
Aluac Computer Division
EL-tronics Inc.*

AS AN EXAMPLE of what you can do with operations research, probability, and statistics, he solved a problem of how many workers you need in a stockroom. He used the same techniques to determine how many fork trucks you need, conveyor capacity, the amount of inventory held, and warehouse layout.

The next question was how to develop the best flow of material for a whole system, from raw material to delivery of the finished product to the consumer. This is complicated, Dr. Salvesson explained, because the best solution for your assembly line may be the worst for your warehouse or your retailer.

With so many variables, you probably can't work out an exact answer by formula. So you attack the question by simulation—set it up to get all the answers possible with every combination of values for the variables—and you can have a computer give you all the answers, from which you choose the best.

Controlling Material Flow With Automatic Devices



JAMES R. KARL

*control specialist
General Electric Co.*

HE EMPHASIZED electrical control and control systems for material flow. Karl spoke of five basic control functions:

IDENTIFY—Manual (dials, key punches, push-buttons) and automatic (limit switches, photoelectric cells, magnetic switches, scales, and load cells).

DISPATCH—Item memory in which item identity stays with it throughout system travel. Control memory in which item identity transfers to a system which follows it throughout its travel (magnetic disc and tape, pinwheel timer, and shift register).

STORE—By tape or at random.

RECALL—Divided into manual, manual-mechanical, mechanized, and automatic (random recall, sortation, simultaneous, sequential, and synchronized).

DELIVERY—Similar to dispatch but separate, differs in detail. ♦

MAKING A POINT

during lunch is Eugene Satmary (right), Campus Sweater and Sportswear. He's flanked by Cameron Bonds, Preformed Line Products Co.





Photo courtesy J. Neils Lumber Co., Libby, Montana, a division of St. Regis Paper Co.

Part-time job?

Straps 85,000 bd. ft. of studs (average) per shift!

At this largest stud mill in the Northwest, power rollers move the load from the automatic stacker to position for the first strap, then to position for the second strap, then out of the strapping station. Total time for the strapping operation (two straps)—about 2 minutes. The operator moves the load to storage or car, and has time for other duties as well!

A Signode power strap feeder takes the strap at **A**, hands it back to the operator at knee height (**B**). The electrically powered Model AE tightens the strap to preset tension; the operator seals and severs it with a stroke of the lever.

The power strap feeder has required no maintenance after 2½

years of operation; the Model AE has required only basic maintenance.

Familiarity with methods like this and a complete line of tools, machines, and accessories engineered for steady work enable the Signode man near you to help you make worthwhile reductions in packaging and handling costs. In the meantime, write for your free copy of "Signode Power Combination Tools."



First in steel strapping
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NEWS ROUNDUP

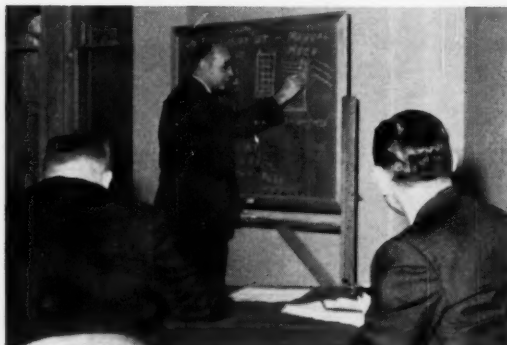


What goes on at a

MHEDA Training Center Course

HAVE YOU been receiving those periodic announcements beginning "National Material Handling Center invites you to attend a course on . . ."? If so, you may have wondered, as we did, what the courses are like. To answer to some of your questions we attended the MHEDA course "Distribution Warehouse Material Handling." It lasted a week, set a fast pace for the sharp minds of the students. They were all management level men with titles such as "Vice President, Manufacturing," "Manager of Material Distribution," "General Services Manager," "Warehouse Superintendent." Subjects they studied included strategic planning of new warehouses, layout, MH in warehouses, automated systems, uses of electronic controls, economics of warehouse operation.

NATIONAL AUTHORITIES gave lectures. In addition to those pictured, they were: Bernard Shreff, Dasol Corp.; William Willits, Western Electric Co.; Herbert Weyrauch, Flo-Tronics, Inc.



LECTURES, FILMS, FIELD TRIPS are solid underpinning of the course. After Lecturer George Stryker explained order-picking course participants saw computer-controlled picking in action at Newport naval base warehouses.

SEMINARS fill in lecture and film instruction. These are informal, and lecturers get into lively discussions of hot MH problems with students. Here Nelson Greller handles an economic point, will toss the ball to Bob Brady (right) when a tough equipment question comes up.



JOHN D. WHEELER
Richard Muther &
Associates



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Insurance Co. of
North America



MORTON BROMFIELD
Bromfield Associates



HOWARD C. BLAKE
Admos, Inc.



SWAPPING IDEAS at coffee breaks adds to benefits. After student Robert N. Lakamp, General Services Manager of J. C. Penney stores, got the views of Director Harry Freeman (right) on a warehousing idea, he drew other students, the lecturer into the discussion.

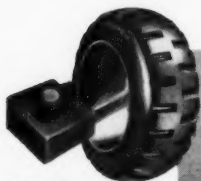
**but...
is it the right
solid
tire
for
you**



**IT'S A FACT... 2 out of 3 truck handling operations
can be improved with the proper tire selection!**

Monarch takes all the guesswork out of selecting the right tire for every job. Now, famous MONOLOK construction is available in 4 special types and 3 proven treads. Select the particular tire to fit your service requirements in any industrial location under most punishing conditions. Check handy chart and specify tire designed to meet your needs... tough smooth-running Mono-Cushion... sure-footed Traction... all-purpose Universal. Your local Monarch representative will help you make the right selection. Call today or write for Bulletin 457B.

**SOLD THROUGH LEADING
LIFT TRUCK DEALERS.**






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TREAD	HEAVY-DUTY	NEOPRENE	NON-MARKING	STATIC CONDUCTING
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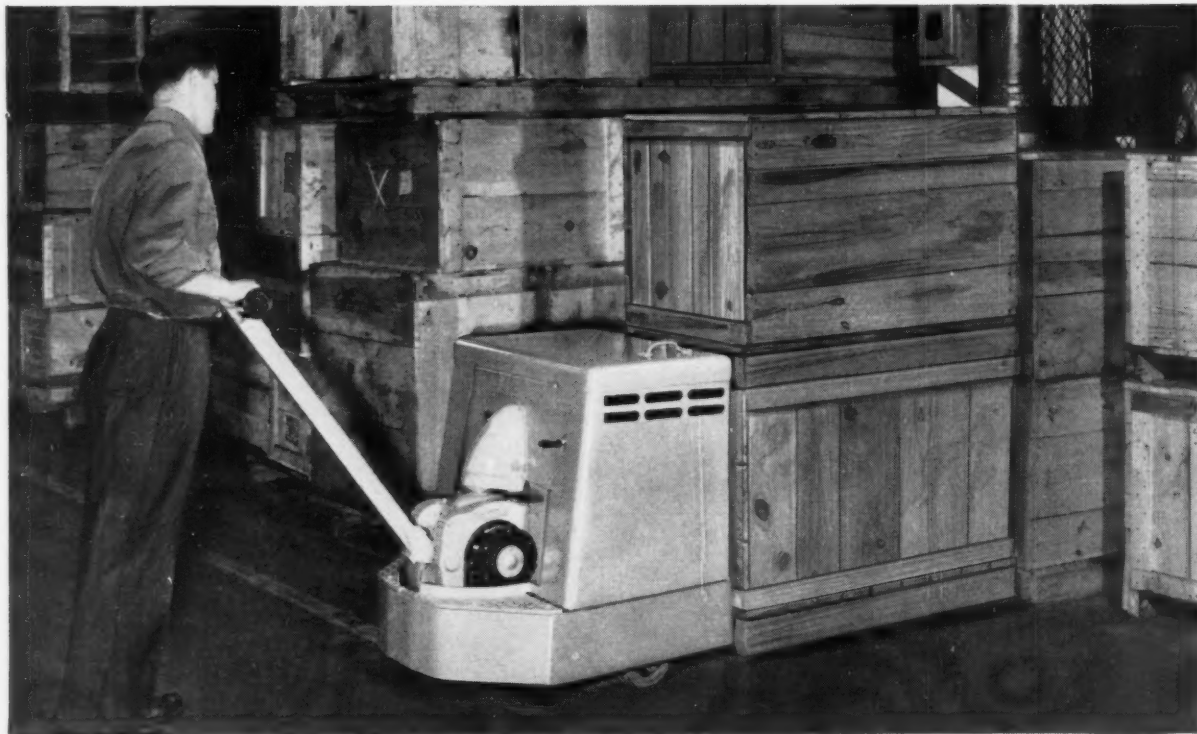
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Chicago, Illinois

Western Warehouse
Reno, Nevada

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EXIDE POWER PACKAGE

Exide Industrial Marketing Division, The Electric Storage Battery Company, Philadelphia 20, Pa. 

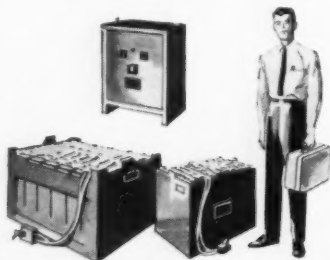


Extra economy assurance for your new walkie-type truck—the Exide guarantee of battery life equal to truck life.

BATTERY GUARANTEED FOR LIFE OF TRUCK

Let's say you're about to buy a new walkie-type electric industrial truck. You want long battery life for maximum economy, and you don't want the nuisance of ever replacing the battery, if you can avoid it. Well, this is the Exide offer:

For walkie-type low lift trucks and hand tractors, the recommended Exide nickel-iron-alkaline battery (the type invented by Thomas A. Edison) is guaranteed for the life of the truck—provided the truck remains in your possession and approved maintenance procedures are followed.



The Exide Power Package. Recommended battery and charger from the world's broadest lines—plus factory-quality service to cover both.

This is not a reckless offer. Exide knows from countless actual performance records that these batteries readily give this kind of life. Many Exide nickel-iron-alkaline batteries have been used in walkie-truck service for upwards of 20 years and are still going strong. So the plain fact is that we are simply giving you positive assurance of battery value that is already there anyway.

Long life is one of the characteristics of Exide nickel-iron-alkaline batteries. They have other unique advantages too. They are lighter in weight than other batteries. They give off no corrosive fumes during use or while charging. And they can be stored indefinitely without injury. This is of special value during seasonal shutdowns or other inactive periods. All you do is discharge the battery, short-circuit the terminals and store in a clean, dry place.

Of course, for any type electric industrial truck—walkie, rider, or narrow-aisle—the maximum power economy depends on three factors: the right battery for the job, a charger to match, and needed service. This combination is the Exide Power Package.

Circle 42 on Reader Service Card

Your Exide representative studies your requirements, then recommends the battery best for your needs from the broad Exide line. He is completely objective in determining your needs because Exide offers all types: Exide-Ironclad with tubular positive plates, Exide-Powerclad premium flat-plate, and Exide nickel-iron-alkaline. Exide chargers are available in both motor-generator and silicon rectifier types and in sizes to cover all needs. Exide service men are coast to coast, all factory trained on batteries and chargers.

The Exide Power Package is your easiest way to get not only maximum battery life in your applications, but maximum battery economy year after year. Write for details. Exide Industrial Marketing Division, The Electric Storage Battery Company, Philadelphia 20, Pa.

Exide®

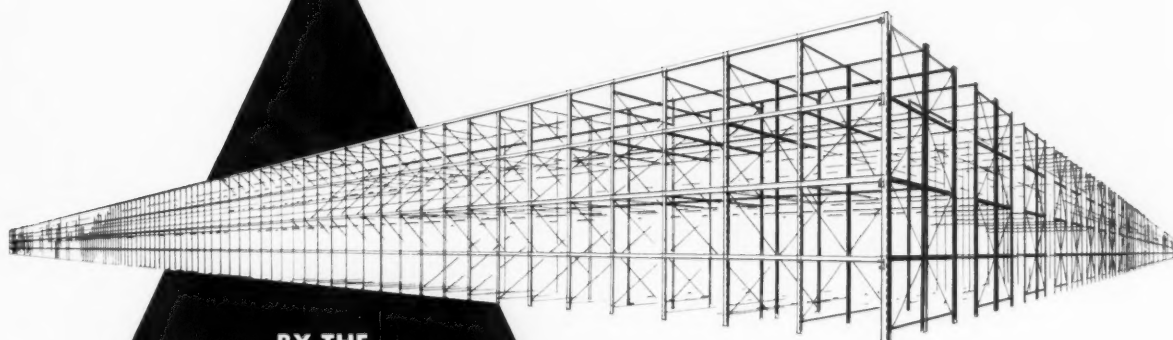
MATERIAL HANDLING ENGINEERING

**22 ACRES
OF NEW
FACILITIES**



Our newest factory for the
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another symbol of leadership



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MAKER OF QUALITY
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Better production facilities produce better storage racks. That's why we're proud to bring you news of this advanced new STURDI-BILT plant. Now more than ever, you'll always do better with STURDI-BILT . . . in quality, in design, in engineering, in reliability and economy. And remember—only STURDI-BILT Storage Racks give you all these in-use benefits:

- unmatched safety and stability
 - fast, easy assembly
 - complete adjustability
 - add-a-section versatility
- . . . plus patented* FLOAT WEDGE construction

BUY BETTER—BUY STURDI-BILT

Let this symbol be your guide



**STURDI-BILT Material Handling Division
Union Asbestos and Rubber Company**

332 South Michigan Avenue, Dept. MHE-61
Chicago 4, Illinois

We want to know more. Without obligation, please bring us up to date on the latest details on STURDI-BILT Adjustable Storage Racks.

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____



COST CUTTING IDEAS

Turntable System Saves \$72 A Day



Feedmill operators can save money with a turntable sorting and pallet loading system. One feed mill loads three different sorts of bagged feed at random onto a second floor horizontal belt.

Under the old system, they stationed two men at the end of the line. Each pulled sacks of one sort of feed and shot them down separate chutes. The sacks full of the third sort of feed went down another chute at the end of the belt. On the floor below, two men at the bottom of each chute loaded the bags onto pallets.

Now no diverting is needed at all on the second floor. All bags move in single file random order down the same spiral chute. This saves 16-man hours a shift.

From the bottom of the chute, a belt conveyor carries the bags across the center of the turntable and unloads them onto the sloping side. The constantly rotating

turntable brings the bags around in front of three men at pallet loading stations. Each selects his own type of feed. His pallet is supported by half of a smaller, floor-level turntable. After he loads each pallet, he rotates his turntable around, making another empty pallet available for loading. As the sorting and loading continues, a fork truck operator removes the loaded pallets and puts empties in their place.

Production remains the same with both systems. But the old method required eight men (two diverters and six loaders). The new system needs only four men, including an alternate. This saves the mill 32 manhours a shift. This comes to \$72 per 8-hour day. At this rate, the turntable system pays for itself in less than a year.—*Standard Conveyor Co.*

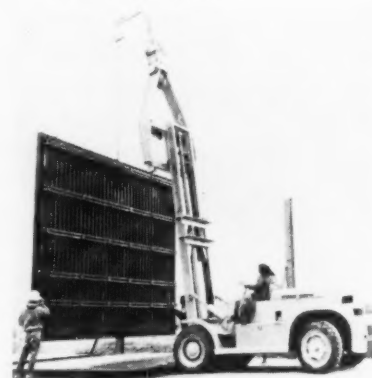
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Lift Truck Cuts Labor Costs \$2 a Square Foot

A 15,000-lb.-capacity fork lift truck with an A-frame attachment enables Gibraltar Structures, Inc., Somerville, N.J. to erect a 30,000-sq.-ft. warehouse in 30 working days with only 6 men. That's 1,000 sq. ft. a day. The company says it is saving \$2 a sq. ft. in labor costs.

The fork truck replaces a crane, which required an operator and a 2-man crew. The truck does all these things:

- Handles forms for concrete floors
- Sets 20-ft.-long by 14-ft.-high wall forms
- Positions steel forms for doorways
- Lifts roof sheathing to top of walls
- Handles I-beams
- Lifts and positions cross braces
- Hauls concrete.



The A-frame attachment used for handling forms extends the lift height of the truck to 33 ft. and the truck can lift over walls when necessary. A pin on the attachment engages long beams or girders so the crew can pivot them into position. Using the attachment this way reduces the time for fin-

Continued on page 26

LOAD LUGGER® System is Key to...



LOAD LUGGER hoisting aboard 14-cu-yd container to be hauled to dump. Many trips are made each day.

good plant housekeeping...

LOAD LUGGER System reduced disposal costs two-thirds at a Chicago plant. Refuse accumulates in LOAD LUGGER containers throughout plant and yards. These are picked up by LOAD LUGGER truck, hauled two miles to disposal grounds and dumped. No more messy handling, sporadic pickups, or wasted truck and driver standby time.



LOAD LUGGER truck dumps 5-ton load of salt into underground storage. LOAD LUGGER saved \$1,560 annually on this operation alone.

efficient handling and storage...

Michigan plant improved handling and reduced costs with LOAD LUGGER and 25 containers of various types. Installed as part of modernization program, LOAD LUGGER system requires but a single driver, replaces two dump trucks, front-end loader and twelve men. System permits bulk handling and buying, best possible use of space.



Find out how the LOAD LUGGER System can improve operations, cut costs for you. Write for information and the name of your dealer.

better salvage and reclamation...

Greater return is realized on scrap by a Milwaukee company, because different types are carefully segregated into hoppers, then dumped into LOAD LUGGER containers. Other LOAD LUGGER containers are spotted at various points throughout the plants and yards to receive scrap and refuse.

1½- to 16-cu yd capacities



SELF-LOADS AND UNLOADS



HAULS



SELF-DUMPS

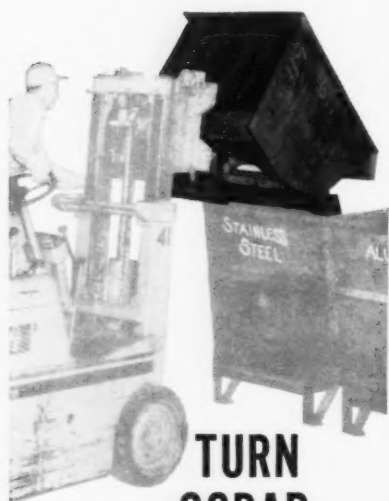
Factories: Milwaukee, Wis. • Hillside, N. J.; Lancaster, Pa.; Cleveland, Ohio; Modesto, Calif

THE HEIL CO.
MILWAUKEE 1, WISCONSIN

LOAD LUGGER and HUGE HAUL SYSTEMS

Sales Offices: Hillside, N. J.; Washington, D. C.; Atlanta, Ga.; Cleveland, Ohio; Chicago, Ill.; Milwaukee, Wis.; Kansas City, Mo.; Denver, Colo.; Dallas, Texas; Los Angeles, Calif.; Seattle, Wash.

Circle 53 on Reader Service Card



TURN SCRAP HANDLING INTO A PROFIT!

Segregated scrap brings higher prices. Add the convenience of easier collection and easier handling, and in most cases you can convert scrap handling from a loss to a profit.



DUMPS ITSELF



RIGHTS ITSELF



LOCKS ITSELF

Hundreds of industries now use Roura Hoppers to collect scrap metal. They're placed alongside machines or in strategic locations. When full, a lift truck picks up the loaded hopper . . . transports it to scrap bin or freight car . . . flips the latch . . . and the hopper *automatically* dumps itself, rights itself, locks itself.

Roura Hoppers are made in eight standard sizes . . . in $\frac{1}{8}$ to 4 yard capacities. Ruggedly built of $\frac{3}{16}$ " steel plate with continuous arc-welded seams, the hoppers give years of continuous service. Heavier plate, stainless, aluminum or galvanized is also available if desired. Standard models shipped from stock.

Specifications are available without obligation. Phone us collect at Townsend 8-3560 or use the handy coupon.

WANT MORE DETAILS? Just clip this coupon to your letterhead, sign your name and mail to:

ROURA IRON WORKS, INC.
1411 Woodland Ave., Detroit 11, Mich.

Circle 109 on Reader Service Card

COST CUTTING IDEAS

ishing a gable end of a warehouse from 12 man-days to only 3. The truck handles concrete with a 1-cu.-yd. bucket attachment. Making a round trip every 2 minutes, the truck delivers 7 cu. yd. of material every quarter hour.—Clark Equipment Co.

Circle 251 on Reader Service Card

Special Trucks & Trays Speed Goods Handling

Bergman Knitting Mills, Philadelphia, makes sweaters and other knitted goods. They recently devised a box truck to move goods through various operations. They also bought custom-made vulcanized fibre trays to ease the handling of goods at the machines.

The result: much faster handling of goods. Over 300 of the high bundle trucks now speed operations. They move goods to and from cutting, sewing, trimming,



first examination, pressing, final examinations, folding, packing, and shipping. Now one-third fewer trucks handle production than when they used standard floor trucks. This has reduced aisle congestion.

The trucks have three high sides, and one 12-inch drop side. Bundles are packed nearly twice as high as before, and can still be trucked easily. Additional benefits: the trucks are light, durable, non-snagging, and easy to clean.

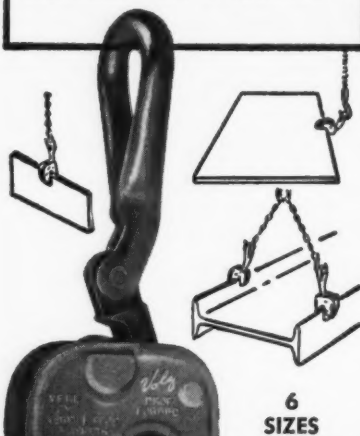
Normally companies buy receiving trays in a size that fits between the machine supports. But Bergman found that some goods were too wide for the trays, didn't fit in

Continued on page 30

YOUR BEST MOVE . . . MOVE

with **MERRILL**
MATERIAL HANDLING
DEVICES FOR THE MOST
IN *Safety and Economy*

Imitated, but never duplicated,
Merrill Lifting Clamps are Drop
Forged to give you Safety in Hand-
ling and Economy in Operation.



**FEATURING
THIS
MONTH**



ADJUSTA CLAMP

One clamp to take a wide range of grips. By simply pushing in or out on the adjustable jaw it will grab $\frac{1}{4}$ " to 12" plates or blocks.

**Over 25 Material Handling
Devices described in our
catalog C-3.**

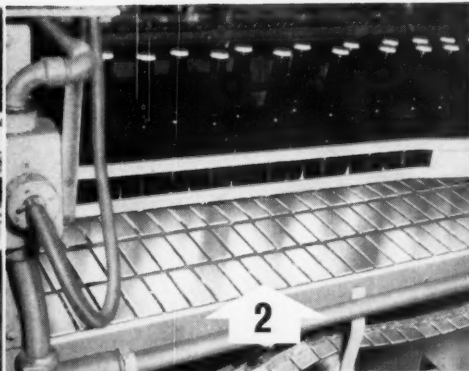
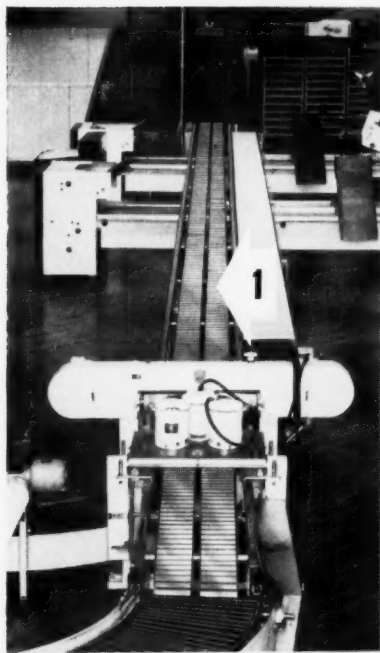
Ask for a copy.

MERRILL BROTHERS

56-74 Arnold Ave., Maspeth, N. Y.

1-60

Circle 80 on Reader Service Card
MATERIAL HANDLING ENGINEERING



① 20 Dozen Rolls Per Minute

450 feet of *Duraweld* rush oven-fresh baked goods through Western bakery.

② Faster, More Efficient

Duraweld reduced downtime at Midwestern brewery.

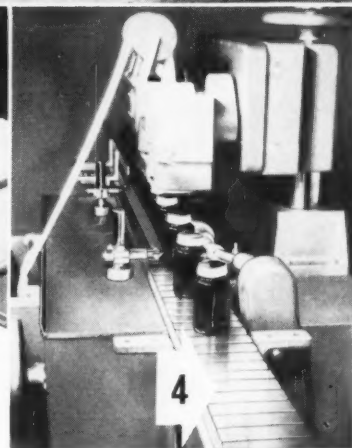
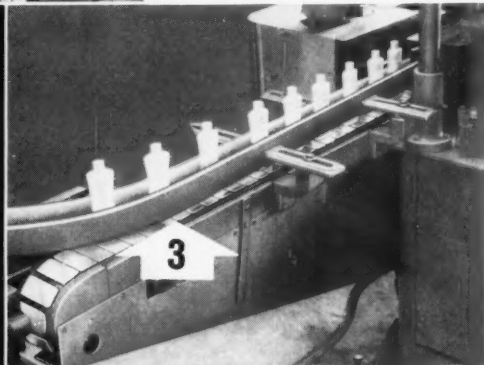
③ 300 Containers Per Minute

Duraweld speeds 2-oz. to 1-gal. containers through Resina High-Speed Screw Capper.

④ Over 200 Per Minute

Duraweld handles vials, cans, bottles and jars on John Burton Automatic Cellubander.

from breads
to beer
to beauty
aids...



DIAMOND

duraweld^{*}

Top Plate Conveyor Chain

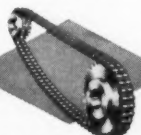
delivers the goods to reduce processing, packaging and product handling costs!

You can reduce production costs with smooth-running, longer lasting DIAMOND *Duraweld* Conveyor Chain. *Duraweld* is all steel (stainless if you prefer) that shrugs off wear, solvents, and scalding detergents. Streamlined design permits higher operating speeds and loads with less maintenance and downtime.

Duraweld top plates are welded to roller chain linkplates to reduce weight and cost; permit the use of wider support rails that improve top plate load capacity and load distribution. This, plus deep sprocket engagement, insures smooth high speed operation.

For complete information, call your DIAMOND Distributor or write direct to DIAMOND CHAIN COMPANY, INC., A Subsidiary of American Steel Foundries, Dept. No. 624, 402 Kentucky Avenue, Indianapolis 7, Indiana.

DIAMOND



ROLLER CHAINS

* The trademark *duraweld* is the property of Diamond Chain Company, Inc.

Circle 40 on Reader Service Card

AMERICAN STEVEDORES' lift trucks sometimes work 'round-the-clock to help cut ship "turn-around" time. Loads range up to 8,000 pounds. Turns are tight and piers are often littered with scrap. The company's dollar-saving tire choice: the B.F. Goodrich Steel Protected industrial pneumatic.



CARGO SAILS SMOOTHLY on B.F. Goodrich industrial tires

FOR 20 YEARS AMERICAN STEVEDORES HAS PUT BFG TIRES TO WORK ON THE WATERFRONT IN NEW YORK

A fleet of 650 lift trucks rumbles along the miles of docks in Brooklyn, Newark and Manhattan, keeping cargo on the go between ship and warehouse. The fleet is operated by American Stevedores, Inc., who for 20 years have relied on B.F. Goodrich industrial tires to speed freight handling.

A FREE B.F. Goodrich TW Analysis can save you as much as 50% on industrial tires, as much as 20% on maintenance costs. Mail the coupon today.

*The B.F. Goodrich Company
Dept. TW-841, Akron 18, Ohio*

Please send me additional information on your free Tire and Wheel Analysis Plan.

Name _____

Company _____

Street _____

City _____ Zone _____ State _____

The B.F. Goodrich Tire and Wheel Analysis Man keeps tabs on tire performance—recommended a switch to new BFG Steel Protected pneumatics when scrap materials on docks started causing problems. The Steel Protected industrial tire is built with 2 plies of steel cable under the tread. These cables shrug off tire-killing impacts and punctures. American Stevedores reports B.F. Goodrich tires give an average of 2½ years' service on the original tread!

Why not take advantage of the dollar-saving services B.F. Goodrich Tire and Wheel Analysis Men offer. Without cost or obligation they'll study your materials handling setup—then recommend the tires that will give longest service at lowest cost. This advice is unbiased because B.F. Goodrich makes a complete line of industrial tires.

Are you getting the most service possible for your tire dollars? If you have any doubts, mail the coupon. The BFG Tire and Wheel Analysis Service is *free*. A special BFG consulting service is available to manufacturers of materials handling equipment.

***Specify* B.F. Goodrich tires when ordering
new equipment**

Circle 51 on Reader Service Card

B.F. Goodrich



Nutting

shows you
"HOW"...

**the widest choice of floor trucks
in the world can cut your costs!**

For regular or "special" design floor trucks it pays to talk to Nutting first. Here's why: no other company makes more models, sizes or combinations of equipment than Nutting. Many times items which you may find listed as "specials" with other makes are regular equipment in Nutting's complete line. As a result you get "custom built" trucks at production line prices. You not only get overall lower prices; you also get the benefit of 68 years of experience, design "know-how" and modern manufacturing skills. To save valuable hours of your time and get the right equipment for your plant, talk to a Nutting representative first, for all your floor truck needs!

Nutting makes over 1000 products, here are just 16 of them



Dollar for dollar, feature for feature Nutting is your best floor truck buy. Write for your free copy of new Junior Catalog 59G.

Nutting



**TRUCK AND
CASTER COMPANY**
Faribault, Minnesota

NUTTING TRUCK & CASTER COMPANY
104 Division Street • Faribault, Minnesota
Please send copy of Junior Catalog 59G.

NAME _____
COMPANY NAME _____
ADDRESS _____
CITY _____ STATE _____

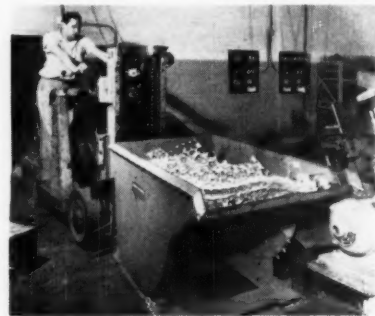
COST CUTTING IDEAS

neatly, and were hard to handle. They requested a special tray, similar to their old one, but indented at the sides to accommodate the machine's supporting legs. Now goods can't spill over, and handle easily.—*National Vulcanized Fibre Co.*

Circle 252 on Reader Service Card

Hoppers Speed Scrap Disposal

Baltimore Plant of Crown Cork & Seal Co., Inc. handles 1.5 million lb. of tinplate, aluminum, and miscellaneous scrap a month. The company makes bottle caps, and



the scrap reflects its huge volume.

They collect scrap in 1 cu. yd. capacity hoppers, haul them to a gondola car with fork trucks. They quickly dump the hoppers by tripping a lock-handle. After dumping, the hopper automatically rights itself and locks in an upright position.

The company uses 40 hoppers. Formerly they had two cranes and their crews. Crown Cork says it saves 100 man-hours a week with this new system.—*Roura Iron Works, Inc.*

Circle 253 on Reader Service Card

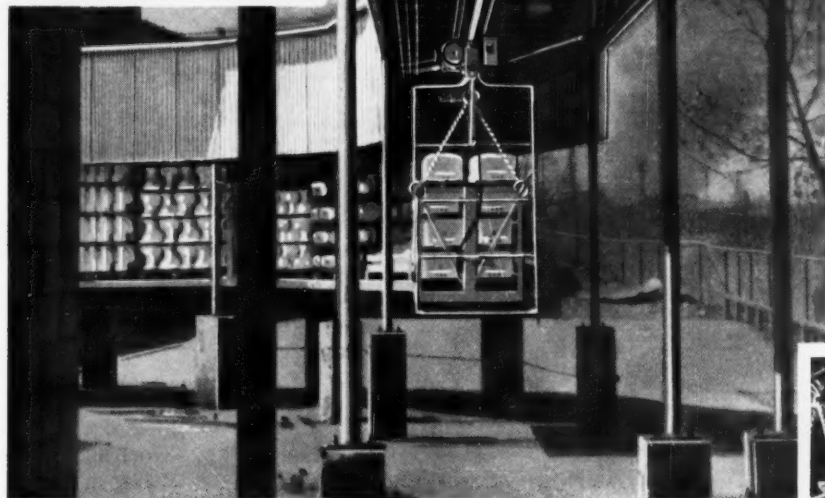
Marker Eliminates Production Slow-down

Carton marking now keeps pace with the packaging machinery at the Brooklyn, N.Y. Mobile Oil Co. Refinery. The company used to

Continued on page 32



UPPER LEFT . . . Loaded train moves through doors that have automatically opened, and commences trip over 1400 feet of Monorail track.



Louden Monorail Interplant Transport System operates trouble free the year around. Three carriers make up train that travels completely unattended from storage area in one building to shipping area in another. Smooth operation of Monorail insures safe transportation of chinaware between plants.

LOWER RIGHT . . . Forklift trucks quickly unload train after it automatically stops at its destination. Carriers may be lowered and raised independently for greater handling ease.



CUT COSTS WITH MONORAIL INTERPLANT TRANSPORT

Companies grow, production facilities expand and interplant handling of materials, parts, semi-finished and finished products become complicated and costly. Time and again a Loudon Monorail Interplant Transport System has proved to be the perfect answer. And with Loudon's Selectomatic Control, transport is automatic.

A good example is The Loudon Selectomatic Interplant Transport System at the Eljer Company, Division of The Murray Corporation, Ford City, Pennsylvania. Recently, to increase plant production, another plant was built similar to the original plant. Shipping and docking facilities for both plants were retained in the original building, only the storage area was incorporated in the second. Therefore, it became necessary to get stock from the second plant to the shipping dock in the first plant. 1400 feet of Loudon Monorail with three steel carriers provide the perfect answer. The Loudon MotoVeyor pulls or pushes the carriers, opens and shuts doors and automatically stops at its destination . . . transport is speedy, trouble-free—regardless of the weather or road conditions, and completely unattended.

A Loudon Selectomatic Transport System can do

many things not required in the Eljer Company installation. It can automatically transport materials unattended from point to point anywhere in or about your plant, and can select the shortest and most direct route, opening and closing switches to its destination. It can travel from floor to floor and building to building, open doors to let itself through and close doors behind it. It stops promptly when there is a load ahead or when it does not have the right of way, and resumes travel when the way is clear. It stops accurately at its destination and even loads and unloads its own carriers with certain classes of materials. It returns empty carriers to point of origin or places itself in storage awaiting the next call.

Louden Automatic Materials Handling is the guaranteed product of the pioneers and oldest company in the field of specialized monorail handling. Both the Loudon field representatives and the factory engineers are highly trained specialists in the field of overhead materials handling. When you have materials requiring handling, lifting or transporting, call on Loudon for suggestions. This will cost you nothing but may prove to be the most profitable move you have ever made.

Louden

MONORAIL & CRANES



NEW . . . 52 pages of illustrated applications . . . industry by industry. Get the latest and most complete information on planning and equipment selection for the best in modern materials handling. Write today for your copy **"COST-CUTTING WITH MONORAIL AND CRANES."** The Loudon Machinery Company, 613 Broadway, Fairfield, Iowa.

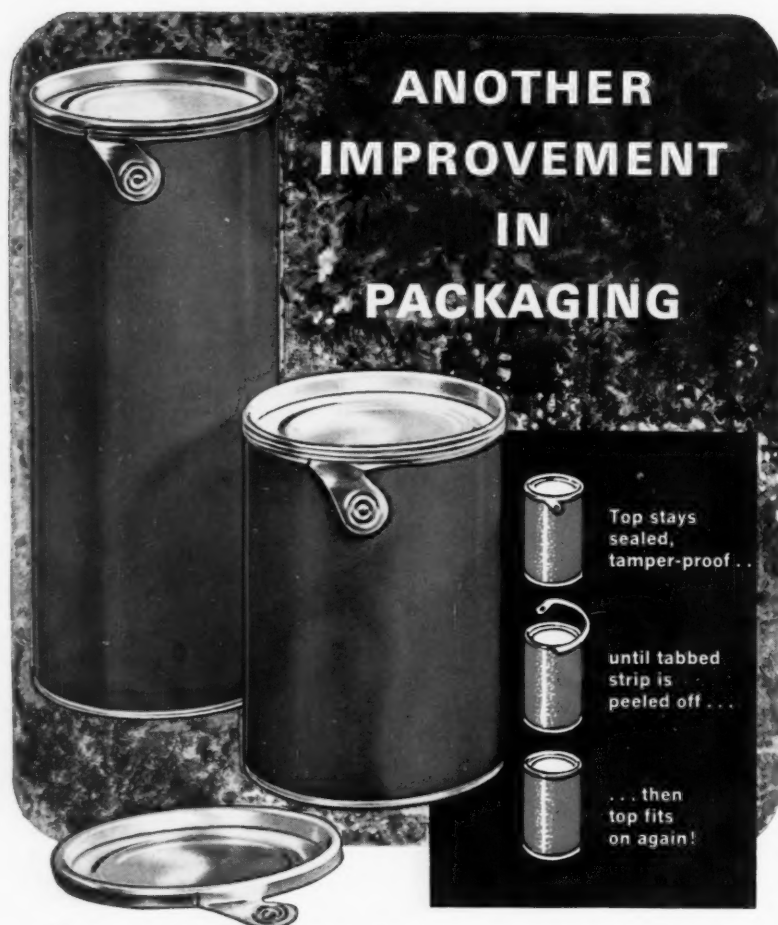
THE LOUDEN MACHINERY COMPANY

A Subsidiary of Mechanical Handling Systems Inc.

Plants in Fairfield, Iowa and Clark, New Jersey

SINCE 1867 . . . THE FIRST NAME IN MATERIALS HANDLING

Circle 67 on Reader Service Card



This easy-opening reusable aluminum top, developed by the Central States Can Corporation, is now available on Cleveland Container fibre cans — a natural for packaging spare parts as well as a wide range of products! It protects the contents from air, moisture and dust. The peeling off of the tabbed seal leaves a smooth edge permitting a snug fit when the top is replaced.

Containers Engineered to Exact Product Needs!

Durable fibre containers can be made to almost any specification — and at a surprisingly low unit cost! Moistureproof, greaseproof, and anticorrosive liners for added protection. A wide choice of labels for distinctive identification.

Two Diameters Ready for Immediate Delivery!

An important advantage exists for products which can be packaged in containers with inside diameters of 2 $\frac{3}{8}$ " and 3 $\frac{7}{8}$ " — two of the most popular sizes.

Write for our latest Packaging Brochure.

THE CLEVELAND CONTAINER COMPANY

Plants and Sales Offices:

Cleveland
Chicago
Memphis
Dallas
Los Angeles
Plymouth, Wis.
Jamesburg, N. J.
Greensboro, N. C.

6201 BARBERTON AVE. • CLEVELAND 2, OHIO

ALL-FIBRE CANS • COMBINATION METAL AND PAPER CANS
SPIRALLY WOUND TUBES AND CORES FOR ALL PURPOSES

CLEVELAND CONTAINER CANADA, LIMITED

Plants & Sales Offices: Toronto & Prescott, Ont. • Sales Office: Montreal

Circle 28 on Reader Service Card

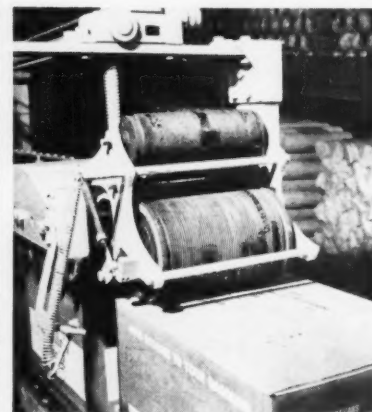
Sales Offices:

Detroit
New York City
West Hartford
Rochester, N. Y.
Washington, D. C.

Abrasive Division
at Cleveland

COST CUTTING IDEAS

hand stencil, but they found they had to slow the carton movement drastically on the conveyor line to allow for the operation. Then they



turned to a marking device that not only keeps up with the production output of 850 cartons an hour, but a marker that always gives a neat and clear impression.

The marker has a built-in inking system. It provides the exact amount of ink each time for an unblurred imprint. Friction between the moving carton and the marking head starts the marking cycle.—*Industrial Marking Equipment Co., Inc.*

Circle 254 on Reader Service Card

Bulk Grease Handling System Saves Costs

Midland Works of Crucible Steel Co. of America has devised a bulk grease handling system.



They expect it to save at least 40 percent over conventional lubricant handling methods. Main savings lie in these points:

- Simpler handling
- Less waste
- Lower prices because container costs are eliminated.

Continued on page 34

MATERIAL HANDLING ENGINEERING



This mark tells you a product is made of modern, dependable Steel.

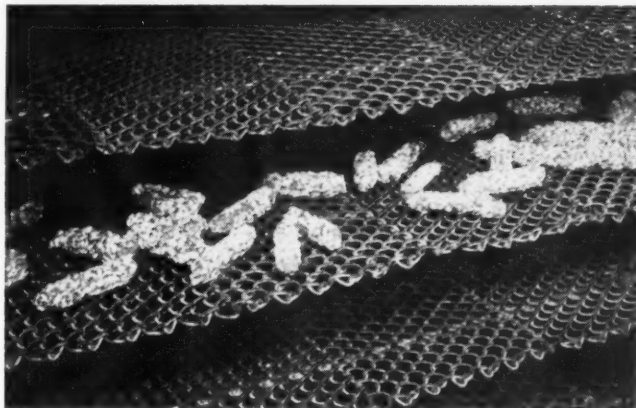
Want to increase your production?

Vita Food Products, Inc., New York City, is putting out three times as many maraschino cherries with a USS Cyclone Belt and some new processing machinery. And they've done it without adding more personnel! They've found there's no breaking or oxidation with the Cyclone Belt—even after steady use in a submersion-type pasteurizer.



Want to stop wasting time?

Curtiss Candy Company, Chicago, Illinois, cools over 1,000,000 Baby Ruth candy bars a week on USS Cyclone Conveyor Belts—while they're making them. There was a time when they had to put the candy on trays and wait for it to cool overnight. Some of the individual belts have lasted years with a minimum of maintenance.



Want to save materials and manpower?

Ruberoid Corporation, St. Louis, Missouri, is completely sold on their Cyclone Conveyor Belt because it saves so much material and manpower in their asbestos-cement plant. They know they can depend on the belts to behave efficiently under difficult operating conditions. And they're very happy with Cyclone Belt flexibility and ease of maintenance.



USS Cyclone Conveyor Belts

can be designed to move almost any kind of product faster for less money. Cyclone makes more types of metal conveyor belts than anyone else in the industry. One of our sales engineers can survey your operation—without cost to you—and tell you which of our eight basic belt types will meet your specifications. Get started now. Send the coupon for your free booklet on USS Cyclone Conveyor Belts.

USS and Cyclone are registered trademarks



**American Steel & Wire
Division of
United States Steel**

Cyclone Sales Offices coast to coast

American Steel & Wire, Dept. 1140
614 Superior Ave., N.W.
Cleveland 13, Ohio

Please send me your free booklet on USS Cyclone Conveyor Belts.

Name

Address

City Zone State

PLANNING A NEW TRUCK DOCK?

KELLEY'S FREE DOCK PLANNING KIT

Can Help You!

Whether you're at the blueprint or "just thinking" stage, you need Kelley's brand new reference booklet on loading dock layout. It provides important data on driveway, aisle, canopy and door requirements, dock heights, current truck-trailer dimension restrictions, etc. Also, includes complete specs on industry's No. 1 Adjustable Dockboard—Kelley's ADJUST-A-LIP. Make yours a modern, efficient and safe dock operation. Act now! Mail coupon today!

LIP ADJUSTS OUT...

AUTOMATICALLY!

LIP ADJUSTS IN...

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DOCKBOARD ADJUSTS
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AUTOMATICALLY!

FREE Get the FACTS!
Send for details TODAY!

- ☐ FREE KIT — "How to Plan a Profitable Truck Dock Operation." Get Booklets on Dock Safety, Modernizing, Levelation Data, Dock Designs, etc.
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Tear out and attach this coupon to your letterhead. Sign your name and mail to:

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INC.**

2139 W. MILL ROAD
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Circle 62 on Reader Service Card

COST CUTTING IDEAS

The system uses a \$50,000 insulated bulk grease truck. It has a semitrailer body with 3 canister compartments. Each has 10,500-lb. capacity.

Crucible's bulk handling setup takes care of its 54-inch hot strip mill. It takes 20,000 lb. of grease to fill the system. They pipe the grease directly from Crucible's two receiving tanks to the central lubrication network.

At the Humble Oil & Refining Co., grease goes into the truck at 130 degrees. Heat loss: only 1 degree after an hour. A gasoline engine at the front of the trailer powers a hydraulic pump. This pump provides the power for the individual motors and pumps for each canister. They can unload a full canister in 26 minutes. Up to 3 types of grease can be shipped at a time because of the separate canisters. Bottom outlet of each canister connects to the suction of its individual pump when unloading starts.

The grease plant uses its own pumps for loading. Those on the trucks do not reverse to handle loading as well as unloading. Separate pumps for each canister avoid manifolding which might lead to contamination. They load, and unload, the canisters through the bottom outlets.

Other system advantages: cleaner and safer working conditions, reduced contamination, and savings in floor space.—Midland Works of Crucible Steel Co.

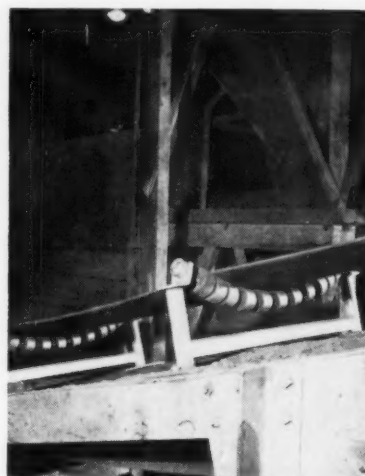
Circle 255 on Reader Service Card

Handling Tray Cuts Costs

A new handling tray for chocolates and other confections reduces costs, avoids contamination, and speeds production at the W. F. Schrafft & Sons Corp., Charlestown, Mass.

Schrafft likes the new high density polyethylene trays so much

Continued on page 38



This conveyor idler can handle abrasive or corrosive material The JOY Limberoller®

Sand, gravel and other abrasive materials are no problem for Joy Limberoller belt conveyor idlers. The entire idler is made of neoprene discs molded to a flexible steel cable. The ends of the cable are swadged into bearings mounted in swiveling support brackets. The bearings are up out of the dirt—away from spilled material. The neoprene cable covering and molded discs are impervious to the attack of most chemicals which corrode steel.

If you have problems handling bulk materials that are abrasive or corrosive the Limberoller can be an immediate solution. They can be quickly installed on your present equipment. For complete information, write for bulletin 2759-90.

JOY

Joy Manufacturing Company
Oliver Building, Pittsburgh 22, Pa.

In Canada: Joy Manufacturing Company
(Canada) Limited, Galt, Ontario

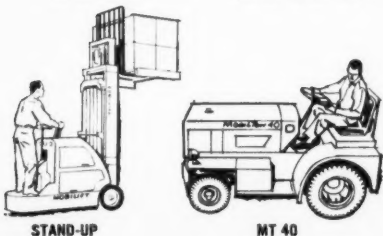
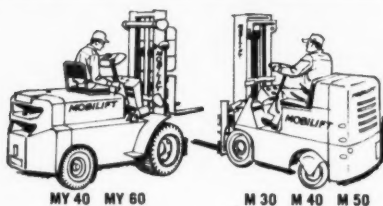
Circle 58 on Reader Service Card
MATERIAL HANDLING ENGINEERING



Mobilift's exclusive hydalizer suspension keeps truck level, cuts tire wear 50%. Get 8-12% more work, too, with FREE automatic transmission.

Economy is the key word in this Mobilift M 40 Truck. First, the exclusive hydalizer suspension system replaces the rear axle. Each rear wheel is independently suspended from an oil cylinder. You get level, 4-point support of truck and load on floors varying up to 3 inches. Keeps both drive wheels pulling, stops slipping, cuts tire wear 50%. And we've *never* had to replace a steering tire.

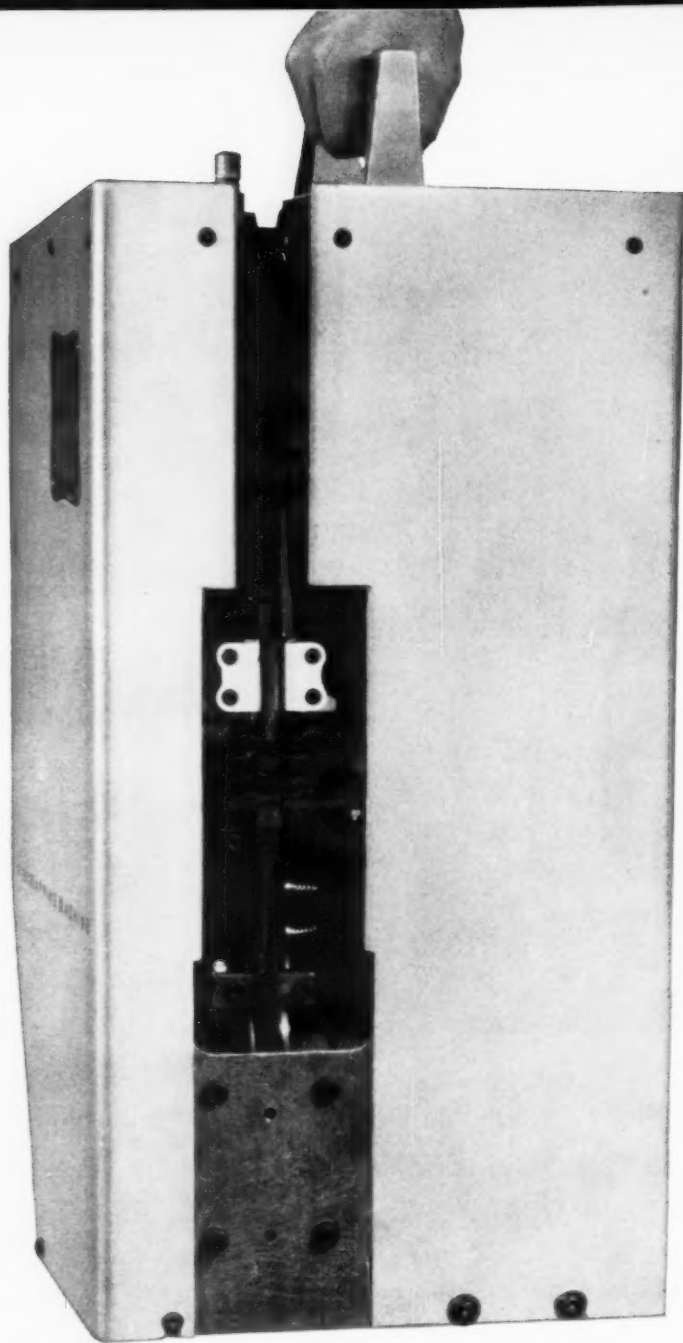
Second, you get Mobilmatic Drive (automatic transmission) free as standard equipment. *Every other truck charges extra.* No clutching, no shifting, longer engine and transmission life. There's less hand and foot movement; you get 8-12% more work. (Incidentally, Mobilift was the first *ever* to build a truck with automatic transmission.) Capacity 2-5000 lbs. depending on model. On the level—the M 30, 40 or 50 gives you more for your money. For full information write or call MOTEC INDUSTRIES, today. Distributed by John Morrell Mfg. Co., a subsidiary of MOTEC INDUSTRIES, Hopkins, Minn.



MOBILIFT



Materials Handling Equipment Division of MOTEC INDUSTRIES
Circle 83 on Reader Service Card



Now, Acme Steel brings you (*literally!*)
the world's first strapping machine with

**FULL-SIZE
PERFORMANCE...**



THE REVOLUTIONARY

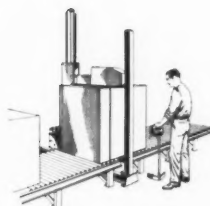


... so *compact*, we can carry it right into your plant ... so *complete*, it does everything you want a powered strapping machine for: fast feeding, tensioning, sealing and cutting. And so *conservative in cost*!

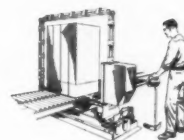
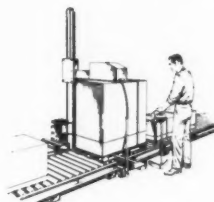
The new F7 is not a stripped down facsimile of a larger machine. Its surprisingly low initial cost and operating economy are engineered into the strapping mechanism—a 75 pound, self-contained unit that doesn't rely on complex (and costly to service) electronic circuits. You can adapt it for any regular duty strapping job, equip it for the exact degree of automation you desire (at right are a half dozen actual applications).

Now, even modest volume operations can discard outmoded methods. Big users can set up additional strapping lines at a fraction of their former cost. And everyone can give production bottlenecks the slip—the low-cost F7 strapping mechanism can be replaced with a standby in a few minutes!

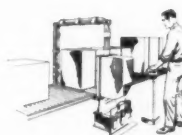
Call your Acme Idea Man for a quick *carry-in* demonstration. See how the new F7 can handle your packaging operation at a greater profit. Or, return the coupon for full facts.



A HALF DOZEN WAYS



THE F7 CAN LOWER



PACKAGING COSTS



**IDEA LEADER IN
STRAPPING**

ACME STEEL COMPANY

Dept. ME5-61, 135th St. & Perry Ave.
Chicago 27, Illinois.

- ☐ I would like an F7 demonstration in my plant.
☐ Send complete information on the new F7.

NAME _____

TITLE _____

FIRM _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

Circle 2 on Reader Service Card

PINT-SIZE PRICE



Inset shows roller chain used to operate the mechanism for the automatic setting of pins.

Bowl-Mor, pioneers in bowling automation, utilize Acme chains in the building of its pinsetters. Bowl-Mor not only manufactures this equipment, but services it to the entire industry. Its volume and fame has spread throughout the United States and Canada.

Acme Roller Chains were selected because, in addition to accurate timing they deliver over 98% of the power furnished by the driving sprocket, for the efficient operations of their pinsetting machinery. Acme chains reduce costly production and maintenance time and are easily installed.

Be sure to get more for your chain dollar by specifying Acme Chains. They are available in all sizes from $\frac{1}{4}$ " pitch to $2\frac{1}{2}$ " pitch.

Call your local Industrial Distributor. He carries a complete line of Acme Roller Chains and has the full cooperation of Acme's Engineering Department.



Write Dept. 29-P
for new ill. 100 page catalog with engineering section.



RELIABLE CHAIN DRIVES FOR ALL INDUSTRIES

ROLLER CHAINS, SPROCKETS, CONVEYOR CHAINS, FLEXIBLE COUPLINGS, ATTACHMENTS. (Special and Standard)

Circle 1 on Reader Service Card

COST CUTTING IDEAS

that it has a program to replace 100,000 wood stock trays and 500,000 conventional layer cards.

The trays weigh only half as much as a wood tray. They are



less tiring to handle, speed production. The polyethylene is nonporous, and the smooth surface cannot absorb dust or odors. They're made so there is no place for dirt to hide, and hot water sterilization doesn't harm them.

An open-grid bottom allows free air circulation when they're stacked. Cove-molded corners prevent dirt accumulation. An identification card snaps easily into the round port molded in the end of the tray. View is of a production line at Schrafft's that has been converted to the new trays. Another feature: unlimited and positive stacking to any height without tipping.—W. R. H. Products Co.

Circle 256 on Reader Service Card

Unloader Cuts Man Hours 75 Percent

One man now unloads a boxcar of sand in 8 hours, and a box carload of grit in 6 hours at the Groton, Conn. Plant of General Dynamic's Electric Boat Division.

It used to take eight men from 32 to 55 hours to unload a box car

Continued on page 40

MATERIAL HANDLING ENGINEERING



New Tractor Shovel brings new economies to Swift & Co.

Michigan introduces Model 55B, early buyer likes its mobility, increased production capacity

5,400 lb lift capacity. Buckets from $\frac{3}{4}$ to 2 yds (1 yd standard). Turn radius, only 11'2". Torque converter, power shift, power steer . . . these perhaps are the more important specifications of the new Michigan rear-wheel-steer Model 55B. Its main benefits: excellent maneuverability plus more capacity than previously available in its price class. Sales record to date: excellent. Example: Swift & Company's Plant Food Division.

Swift, we're proud to report, in just a few months has put Model 55B's to work in company plants in Wisconsin, Iowa, Texas, Louisiana, Georgia, North and South Carolina—in most cases alongside other Michigan models! Their experience in Madison, Wisconsin, is typical . . .

Turns in 11'2"

Here, Swift uses their 1 yd 55B with three other Michigans. A 16 cubic foot Model 12B Michigan unloads boxcars and feeds the raw material to bin con-

veyors. Raw storage bins to mixer, the material moves in the bucket of a $1\frac{1}{4}$ yd Model 75 Michigan. Transportation from mixed product bins to two shipping mill conveyors is the job of another Model 75 and the new Model 55B.

The 55B, with its 11'2" turn radius, has been especially productive in locations where smaller bins and narrower aisles restrict maneuvering room.

300 ft cycle: 60 loads hourly

Pictures show the 66½ hp machine feeding 6-24-24 granulated fertilizer . . . one cubic yard, 1890 lbs per bucket load, 60 loads per hour. Average haul, 150 feet one way. All told, the four Michigans cover an area of 36,000 square feet, help make over 100 kinds of fertilizer, 95% of it bagged.

No lost time

Conditions provide a severe test of both men and machines. The air is very Circle 17 on Reader Service Card

dusty. Material is abrasive and extremely corrosive. During the two or three month rush season machines must work 20 hours a day . . . full tilt all the time . . . hitting the piles hard, reversing fast, driving fast. Performance? The oldest Michigan, a Model 75 bought in February 1956, has in 12,000 working hours lost *virtually no assigned work time!* Efficiency has been equally good for the other three Michigans, including the year-old Model 55B. "Good, rugged units," is the way Swift's Madison plant manager summarizes it. "Our Michigans sure do a lot of work for us!"

Michigan is a registered trademark of
CLARK EQUIPMENT COMPANY
Construction Machinery Division

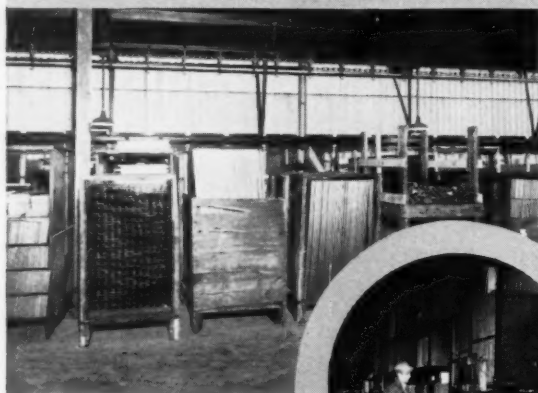


2445 Pipestone Road
Benton Harbor 25, Michigan
In Canada:
Canadian Clark, Ltd.
St. Thomas, Ontario

**GOOD HOUSEKEEPING and
ORDERLINESS PROMOTES**

greater **PRODUCTIVITY**

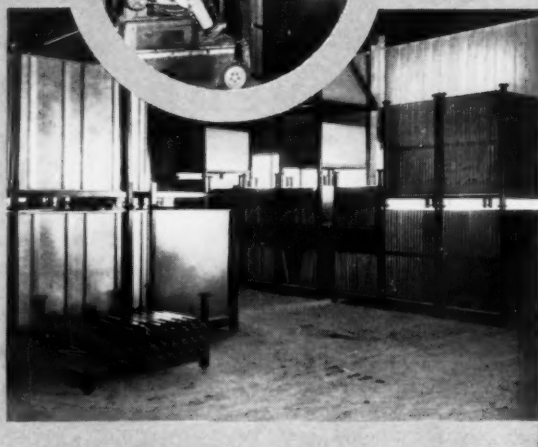
with **ERCO STAK-PAL**



Morton Mfg.
required
greater
utilization
of cubic feet
displacement.

Invested in
STAK-PAL
System of
Handling
Materials.

- Economy of space
- Eliminates Damage to products
- Safer handling
- Better storage
- Greater efficiency-
- Productivity
- Unlimited Stacking.



ONE UNIVERSAL CARRIER THROUGH PRODUCTION!

One base and any combination of posts, sides, ends or enclosures to give you the Universal method of **HANDLING** and **STORAGE** of most all materials. Heavy tubular steel construction insures long life. STAK-PALS produce major reductions of handling and storage costs for both large and small companies at low initial investment and rapid amortization.

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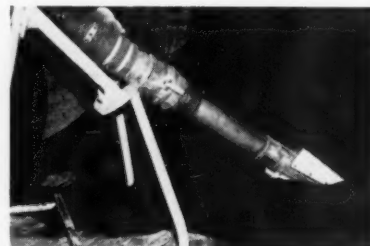


Circle 106 on Reader Service Card

**COST
CUTTING
IDEAS**

of foundry sand to the storage bin. For unloading blast-cleaning grit, it took six men 24 to 30 hours.

The company recently installed a pneumatic sand conveyor-collector. The system includes a porta-



ble collector that unloads the foundry sand and blast-cleaning grit from boxcars to one of three bins in different plant locations.

To unload, a crane moves the collector to the boxcar. Men attach the collector to a hatch above the appropriate bin, and connect it to the unloading tool through quick-connect couplings in the conveying piping. As soon as the blower motor goes on, a vacuum develops in the conveying line, and unloading proceeds.

Main feature: before, they had to tie up a boxcar until they rounded up a crew. Now, they unload immediately, at any time of day or night. —*The Allen-Sherman-Hoff Co.*

Circle 257 on Reader Service Card

**Tractor-shovel Speeds
Work at Smelter Co.**

North American Smelting Co., Wilmington, Delaware, smelts non-ferrous metals for foundries, print-



ers, and the automotive industries. They use a 2,500-lb.-capacity tractor shovel to unload scrap, move slag byproducts, and to charge

Continued on page 42

MATERIAL HANDLING ENGINEERING

ALLIS-CHALMERS
LIFT TRUCK
 with **SIDE-SHIFTER**
 makes big **"DOLLAR-SAVING"** Difference
at West End Lumber . . .



BH-161



The addition of a 6,000-lb Allis-Chalmers lift truck has saved an estimated 130 man-hours a week at West End Lumber and Material Company, Little Rock, Arkansas.

The saving is gained in many ways in and around the yard — handling pallets, binning and stacking lumber, loading trucks...even hoisting I beams and other heavy materials on construction and maintenance jobs.

The company also noted a marked improvement in the morale of the operators since the FTP60 went to work. Its auto-like controls felt immediately familiar, even to inexperienced operators. Further, this machine is equipped with a side-shifter attachment which minimizes maneuvering the truck to realign a load.

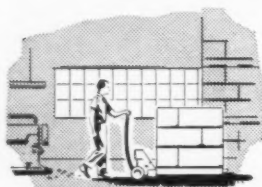
Let your Allis-Chalmers dealer show you how the right Allis-Chalmers lift truck can make a big dollar-saving difference in your operation. Allis-Chalmers, Milwaukee 1, Wisconsin.



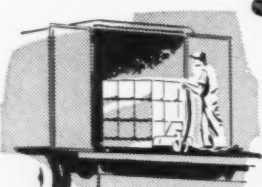
ALLIS-CHALMERS

POWER FOR A GROWING WORLD

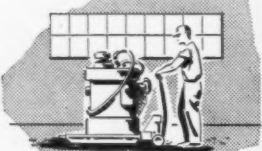
Circle 4 on Reader Service Card



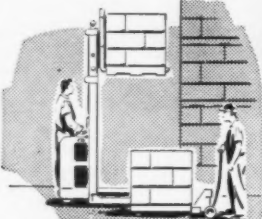
Short Hauls



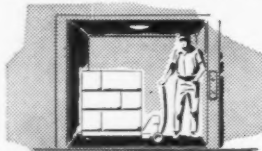
Close-Quarter Maneuvering



Infrequent Handling



Complementing Power Equipment



Light-Capacity Elevators-Floors



In-Process Handling

This truck suits 'em all!



Lightweight • Hydraulic PALLET TRUCK



MODEL L3P
Capacity 3,000 lbs.

WORLD'S MOST POPULAR pallet truck because it does so many jobs so well. Superbly built to withstand years of use and abuse.

LIGHTWEIGHT . . . lessens operator fatigue.

EASY TO MANEUVER . . . easy to pull . . . patented booster roll permits effortless pallet entry.

CONVENIENT FOOT PEDALS lift and lower your load.

• Completely precision hydraulic for dependable operation. Has aluminum alloy construction, husky one-piece welded steel frame, safe dual-purpose brake, 270° turning radius.

Mail Coupon for full details!

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COMPANY _____
STREET _____
CITY _____ STATE _____

Circle 101 on Reader Service Card

COST CUTTING IDEAS

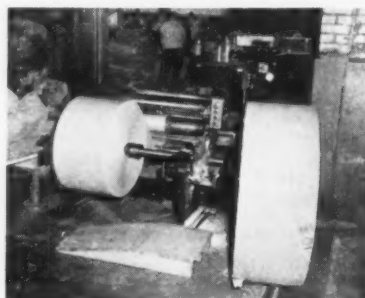
reverberatory furnaces with aluminum.

John Nicolls, plant superintendent, says the shovel saves money. It replaced two men on brass sorting, doubling the tonnage in this work. Another example: It unloads a truck of loose red brass in 20 minutes. It previously took two men six hours. Round-the-clock operation means this versatile shovel puts in 100 production hours a week on the average.—*The Frank G. Hough Co.*

Circle 258 on Reader Service Card

Extensible Paper Keeps Wrappers Whole

McCall Corp., Dayton, Ohio finds that fewer magazine wrappers break in transit when they wrap in extensible paper. It was common before for the wrappers to come off the magazines, due mainly to chafing in the sack. And



since the company puts out over 3,000,000 magazines a day, this was quite a problem.

They considered a stiffer wrap, but gave it up as too costly. Then they tried the extensible paper. This paper has an added stretch built into it in the manufacturing process. It's much tougher than regular paper.

Today, they pack sharp-edged magazines in the extensible. They ship other soft wrap publications in standard kraft wrapping.

McCalls buys wrapping paper by the carload in rolls ranging from 15" to 36" wide. Base weights range from 40 to 70 lb. Wrapping

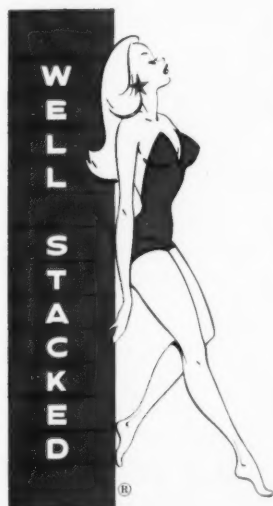
Continued on page 44

MATERIAL HANDLING ENGINEERING

FLEXIBILITY

EMI air-row head pallet racks

the most flexible,
cost saving and work saving
racks in the industry.



EMI air-row head DRIVE-IN RACKS **EMI air-row head DRIVE-THRU RACKS**

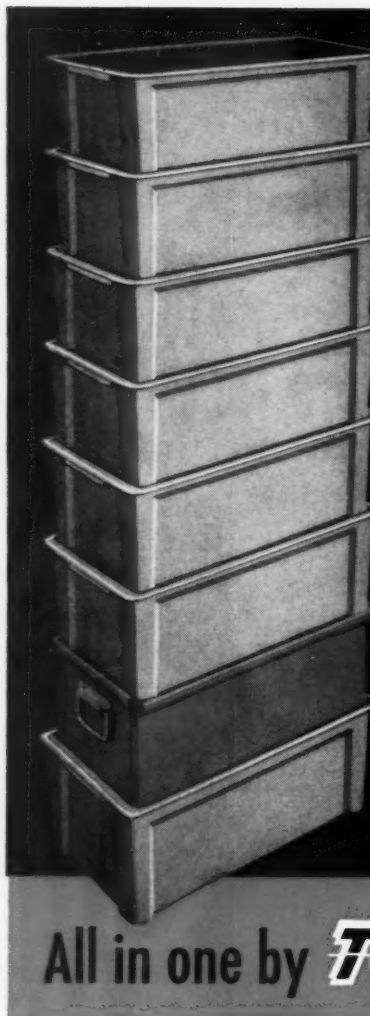
These strong, efficient, space-saving racks are all engineered on the AIR-ROW Head principle with basic interchangeable parts.

EQUIPMENT MFG. INC.

21552 HOOVER ROAD • DETROIT 5, MICHIGAN
Circle 144 on Reader Service Card

Before you build, remodel or add to a storage area, **FIND OUT ABOUT AIR-ROW HEAD RACKS**
WRITE FOR DETAILED INFORMATION

YOU CAN STACK ANYTHING ON **EMI** RACKS



Durable

Lightweight

Stacks with

Metal Boxes

All in one by TOTELINE

Now . . . a sturdy tote box of strong-as-steel molded fiber glass which stacks interchangeably with your present metal boxes of the popular 10 by 20 by 8-inch size.

You can benefit from the advantages of durable molded fiber glass immediately by introducing Toteline Model 538-1 into your present system. Then replace metal boxes with Toteline boxes as the metal boxes need replacement.

Toteline boxes last indefinitely without maintenance. They are immune to rust . . . you can't dent them and they never need straightening. There are no sharp edges . . . just smoothly rounded corners. Model 538-1 cleans easily with hot water.

Molded handles are a part of the integral, one-piece stacking lip. Steel wire, completely concealed within the edges of the box, adds strength and rigidity.

For further information and descriptive catalog, just cut out this coupon and clip to your letterhead. Please furnish your name and title.

NAME _____

TITLE _____

MF 10B—MHE

MOLDED FIBER GLASS TRAY CO., Linesville, Pa.

*Chosen to Represent the U.S Reinforced Plastics Industry
at the 1959 International Trade Fair in Zagreb, Yugoslavia*

Circle 81 on Reader Service Card

COST CUTTING IDEAS

is automatic. Roll-fed paper is mechanically cut to desired lengths, wrapped about in-feeding machines, and adhered in place ready for addressing and mailing.

They wrap bundles of from 10 to 40 publications also in extensible. This is largely a hand operation at present, but machines are being developed.—Clupak, Inc.

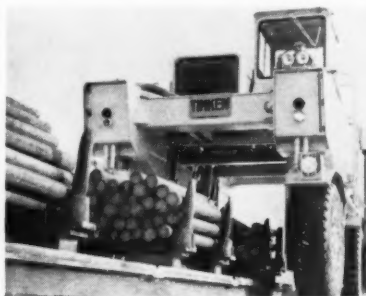
Circle 259 on Reader Service Card

Straddle Truck Does Multiple Handling

A new weight lifter works at the Steel & Tube Division of the Timken Roller Bearing Co. It's a giant straddle truck, one of the largest ever made.

It can pick up and carry 60,000-lb. loads between its wheels. The truck weighs 17 tons, lifts a maximum size of 75" high by 60" wide. The carrier is 12' 2" high, and 9' 3" wide at its extremities.

Its main use is multiple handling. It can place several loads of steel on a heavy duty bolster, pick up the bolster and carry it to its destination, making several trips in one.

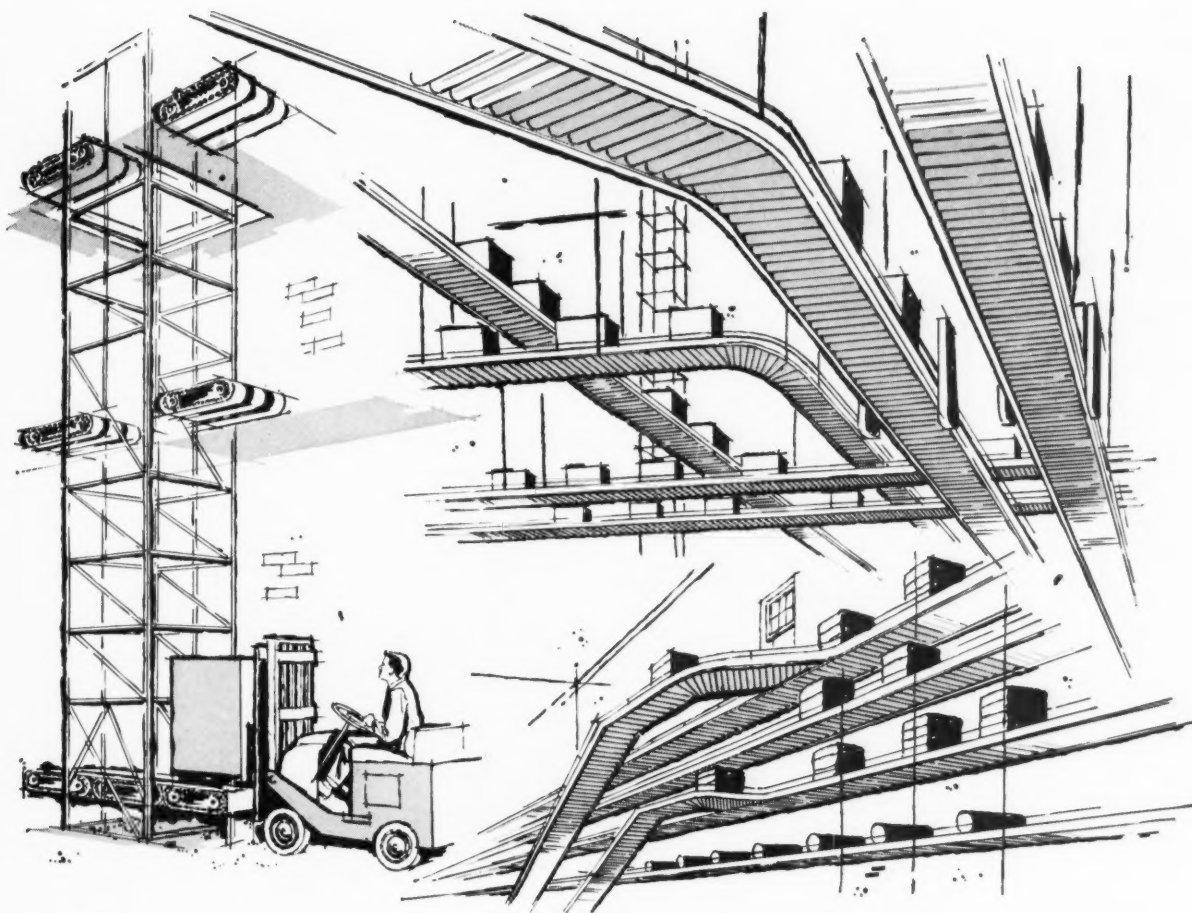


It hauls piggyback steel loads back and forth between the company's Canton and Gambrinus steel mills, a distance of 2½ miles from pick-up points. In an 8 hour shift, it makes 16 round trips.

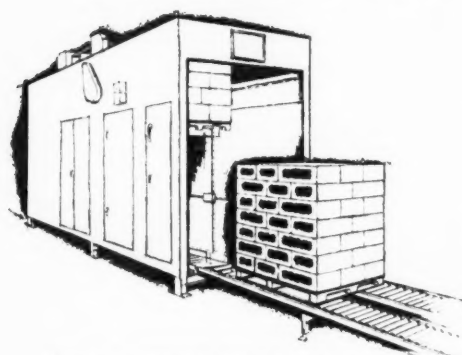
Special equipment: eight shock absorbers in addition to the usual load springs on most straddle carriers. It has 16 tapered roller bearings, on the pinion, differential, wheels, and at the tops of the fork

Continued on page 46

MATERIAL HANDLING ENGINEERING



START YOUR OWN BUSINESS BOOM



ALVEY AUTOMATIC PALLET LOADER



Reduce Costs—Increase Capacity With an Alvey Conveyor System

The way to make your business better quickly is to reduce costs now, and at the same time equip yourself to handle more business in the promising months and years ahead.

Don't delay. Procrastination is the thief of present profits, and future sales.

If you've been postponing action to improve your material handling system, let Alvey's engineers come in *now* and survey your operation. It costs you nothing; it may save you up to 30% of your handling costs—and put you months ahead of competition.

Call or write *today*.

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Circle 5 on Reader Service Card

RED GIANT: Rugged, Dependable— Year after Year

Red Giant Hand Lift Trucks are available in eight basic models and with a range of sizes and capacities in each model.

Tremendous strength without excessive weight, all steel construction, electric arc welded members, long bearing surfaces, and most of all, the simple and correct design, enable these Red Giant Lift Trucks to stand up under constant use—even abuse—year after year.

Smooth operation, a non-kicking, spring-balanced handle for complete safety—these are some of the features which make RED GIANT the most practical truck of its kind.



INDEX No. 51.15

Red Giant Model K. Job tested handling skids of building materials on skyscraper construction projects. Capacity 1500 lbs. Hydraulic lowering check.

INDEX No. 51.13

Red Giant Model J for movement of skids. Two stroke mechanical lift eases effort required to lift load. Capacities 2500 lb. and 4000 lb.

INDEX No. 51.14

Red Giant Model S fully hydraulic lift and lowering. For movement of skids. In capacities of 2500 lb. to seven and one half tons.

INDEX No. 51.21

Red Giant Model JKT for handling single faced pallets. Mechanical lift and hydraulic lowering check. Capacities 2500 lb. and 4000 lb.



INDEX No. 51.22

Red Giant hand lift truck for two or three ton loads on two faced pallets. Fully hydraulic lift and lowering. Capacities 4000 lb. and 6000 lb.

Model SVP

INDEX No. 51.12

Red Giant Model H hand lift truck for movement of skids. Single stroke mechanical lift with hydraulic lowering check. 2500 lb. and 4000 lb. capacities.

INDEX No. 51.22

Red Giant H2toVP fully hydraulic lift and lowering for two faced pallets. Separate pump handle for lifting in limited space. Capacity 2500 lbs.

REVOLVATOR CO.

ESTABLISHED 1904

Designers and Manufacturers of Portable Elevators, Power and Hand Lift Trucks, Hydraulic and Traction Elevators, Carboy and Barrel Dumpers, Portable Cranes, Positioners, Storage Racks, Turntables and Other Material Handling Equipment.

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NORTH BERGEN, NEW JERSEY

Sales Representatives in Leading Centers

Circle 102 on Reader Service Card

COST CUTTING IDEAS

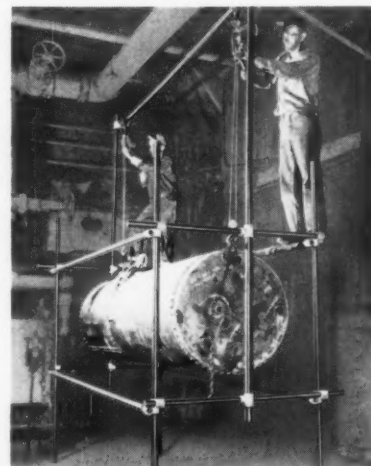
tubes. Special tires 14:00 x 24, 24 ply rating handle heavy loads, provide maximum traction.—*Hyster Co.*

Circle 260 on Reader Service Card

Scaffold-Hoist Unit Saves Time-Money

How would you go about removing an old steel tank, 3' in diameter, 10' long, weighing over 1,500 lb. and installed 8' above the floor in tight quarters?

A Cincinnati plumbing contractor had to do it. A professional rig-



ger quoted \$160 for the job. But the contractor wanted a faster, cheaper job.

The result: a combination scaffold and hoist constructed of steel pipe and slipon aluminum fittings. Only tools needed: a pipe cutter and Allen wrench. It took 3½ man hours to cut the pipe, slip on the fittings, erect the scaffold, rig the tank, and lower it. Labor cost: \$15.93. Total cost of materials: \$76.29. However, the entire scaffold was salvaged (\$76.29) and will be used on future jobs.

The scaffold-and-hoist can move any medium-to-heavy equipment. It can be adapted to size by varying the length of pipe. The pipe need not be cut to shorten dimensions since it slips through the fittings.—*The Hollaender Mfg. Co.*

Circle 261 on Reader Service Card

MATERIAL HANDLING ENGINEERING

65% CUT IN MATERIAL COSTS— 3 TIMES THE SPEED—WITH BOSTITCH STAPLING

This chemical company uses Bostitch stapling to make up 200-lb. test regular slotted containers for its products used in the shoe industry. One man operating the foot-operated Bostitch F94 Stapler can bottom 150 cartons in 45 minutes—three times faster than the former method. In addition, the stapler saves space since its speed permits cartons to be made up as needed. With the slower previous method, cartons had to be made up in advance and stored.

A Bostitch Economy Man—one of 350 in 123 U.S. and Canadian cities—pointed the way to these savings. He has cost and speed facts on setting up and closing the kind of cartons you form. Look him up in your phone book or drop a line to Bostitch, 706 Briggs Drive, East Greenwich, Rhode Island.

Fasten it better and faster with

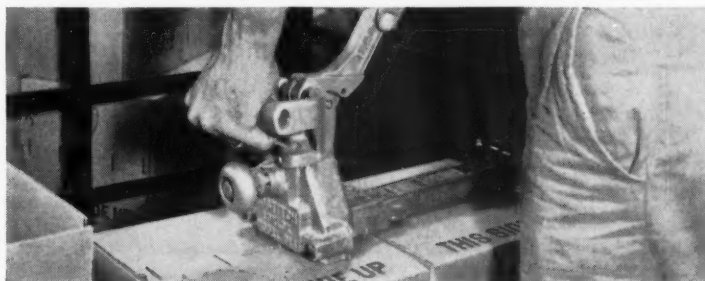


706 BRIGGS DRIVE, EAST GREENWICH, RHODE ISLAND

June, 1961



(Below) To seal the tops of corrugated cartons loaded with five gallons of shoe leather dressing, a Bostitch Boxlok Stapler is used. One man can top-seal ten cartons a minute as the loaded boxes arrive at this station by handtruck.



Circle 14 on Reader Service Card



PRODUCT NEWS

Sure-footed Lift Trucks

Hydraulic suspension on steering wheels gives the Mobilift cushion-tired sit-down Models M-30, M-40, and M-50 good traction and steering ease. Each steering wheel in this fork



truck series is independently cushioned in an oil cylinder attached to the frame. This provides 4-point support on uneven floors or crossing and turning on sharp crowns of loading ramps. Photo shows the M-40 crossing the crown of a concrete ramp with a 3-inch level difference. Company says, with its Hydralize, there is no slip, no dig, steering is easier, and tires last longer.

*Mobilift Materials Handling
Equipment Div.,
Motec Industries, Inc.*

Circle 301 on Reader Service Card

Hopper Boxes Supply Assemblers

Steel hopper boxes receive parts, store them, feed them to assemblers. Triple use cuts material handling



cost. The boxes, 28 in. x 42 in. x 21 in. deep, receive small steel parts as they come from forming machines. When filled, boxes tier, so fork truck can stack them in storage area. Box

loads of parts go to assembler as needed, rest on tilted racks so assembler picks direct from hopper end. Maker of box also supplies rack or stand adapted to needs of user.

*Republic Steel Corp.,
Berger Div.*

Circle 302 on Reader Service Card

Color Coding Enamels

Come packaged in 16 oz. aerosol containers. Easy to apply. Fast drying, permanent. Adhere to wood, metal, plastic, corrugated board. No cans to open, no waste, no mess. Makes color coding a clean, fast low-cost operation. Available in 18 colors. Company points out these uses: color coding of inventory stocks and



work in-process; marking of tools by departments; identifying piping, valves, electrical connections; directing inter-plant routing of materials; inspection marking. Ideal also for spotlighting moving parts or other safety hazards; and for marking fire and water valves and similar emergency equipment. Suited for inside or outside application.

Reynolds Ink, Inc.

Circle 303 on Reader Service Card

Crane Unloads Trucks

Boom of heavy duty mobile crane can enter truck van or box car to unload heavy items. Maneuverable in close quarters, good for lifting material over obstacles, and general lifting and transporting jobs. Rubber-tired industrial truck mounts

crane. Two models, XH with 5, and YH with 10 ton capacity. Available with telescopic boom and fail-safe



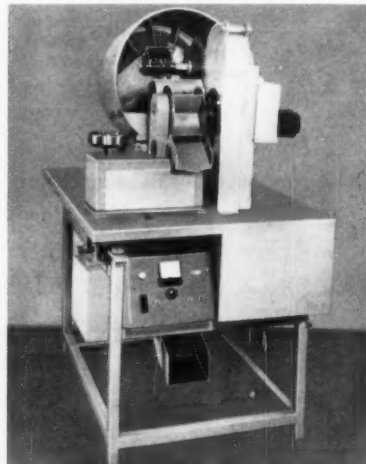
devices to prevent over-topping or over-swinging right or left. Hydraulic controls and action, 180° boom swing. Operates quietly.

Silent Hoist & Crane Co.

Circle 304 on Reader Service Card

Automatic Parts Counter

Electronically controlled parts counter bulk counts and also batches in small lots. Handles up to 450,000 items an hour. The Atronic Parts Counter Model 620 handles parts ranging in sizes and shapes from paper clips, ball bearing assemblies, and fasteners of all types to candy and drug capsules. Items can weigh between .01 and 2.5 ounces, range in size up to 2 inches. Applications: packaging, prepackaging, bulk shipping, inventory control, incoming inspection, and production batching.



Atronic says an attendant can stop one counting operation, empty the machine, reset the simple controls,

Continued on page 51

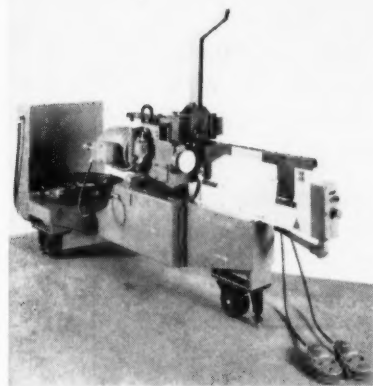
and begin counting out another product in about two minutes. Operation principle is automatic high speed weighing of parts in sufficiently small batches to permit an accurate count by weight regardless of manufacturing tolerances.

Atronic Products, Inc.

Circle 305 on Reader Service Card

Semi-Automatic Strapping Machine

Lower chute of M20L steel strap-per fits into narrow slot between sections of conveyor, making supplementary table or rollers unnecessary. Machine has fast feed, husky construction, unlimited strap take-up, suits high-production packaging lines. Operator positions package, steps on feed switch, inserts strap in lower chute, then steps on cycle switch to tension and seal strap. Standard chute



lengths are 18, 24, and 30 in. vertical strap guides clear packages 15, 21, or 27 in. high. Tensions adjustable, up to 1,500 lb. A 3-h.p. 1,800 r.p.m. 3-phase 60-cycle motor powers the machine. Accessories include wheels and floor jacks, pre-loading strap dispenser for loading strap without interrupting production, safety switches which stop machine when it is out of strap or seals.

Signode Steel Strapping Co.

Circle 306 on Reader Service Card

Epoxy Resin Systems

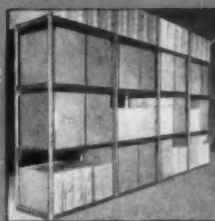
Company offers two Class H epoxy resins for impregnating, potting, and casting. Permacel ER 4251 (clear, unfilled) and ER 4287 (opaque, filled). Both are single component, require no mixing before use. Each has good heat resistance and electrical properties under 180 degrees C. Other features: continuous operating temperatures, long pot life, and very low viscosity during cure. Inherent

Continued on page 51

Buy *Equipto* -- Industry's choice for Quality Products



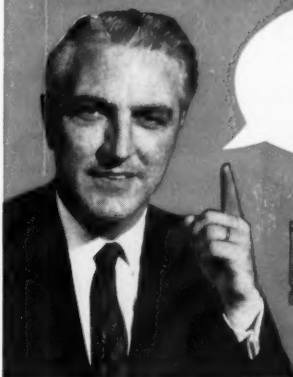
Heavy Duty Storage



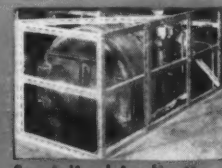
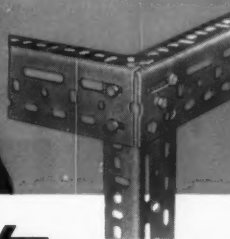
Bulky Storage



Double Deck Shelving



Try a bundle—
YOU'LL LIKE IT!



Specialized Applications

Equipto SLOTTED ANGLE

lets you build anything you can think of!

Remember all the different things you could make with an Erector set? Then think of Equipto's Slotted Angle — a man's size piece of steel utilizing nuts, bolts, slots and holes. It's a versatile piece of metal that lets you build anything — carts, benches, stairs, racks, mezzanines and many other useful time-saving structures.

The sheer simplicity of Equipto Angle makes the job of assembly highly economical in terms of manpower — just cut and bolt together. No waste — structures may be disassembled and material re-used. Not merely electroplated, but hot dip galvanized for maximum rust prevention.

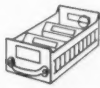
Equipto Angle is the standard of the industry. 1—Available in either 12 or 14 gauge. 2—Comes in convenient lengths packed 10 angles to a bundle with hardware. 3—Two sizes, 1½" x 2¼" and 1½" x 3". 4—Bolts are standard and interchange with other materials. Write today for your free copy of Equipto Angle Idea Book.



SHELVING



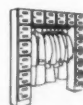
BENCHES



DRAWER UNITS



LOCKERS



EQUIPTO ROBE



STOCK CARTS



EQUIPTO ANGLE

Equipto

305 Prairie Avenue, Aurora, Illinois



- ☐ Please send me a free copy of your Equipto Idea Book.
- ☐ Have engineer call to survey our plant for suggested uses.

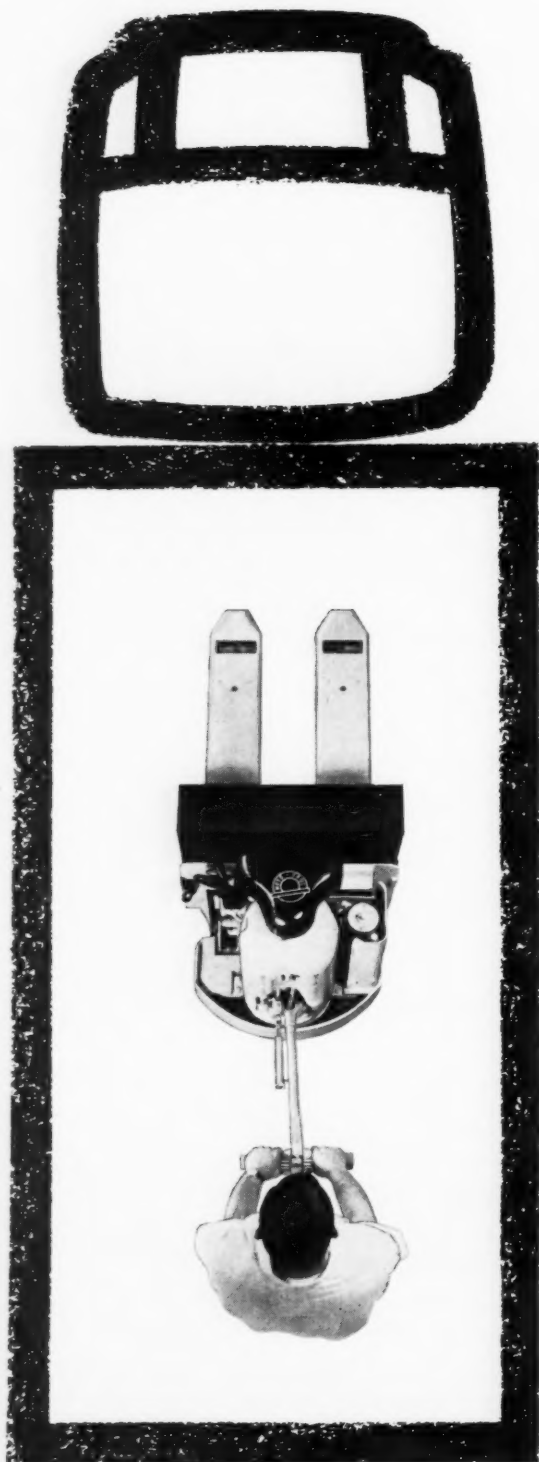
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Circle 43 on Reader Service Card



Cut Truck Loading Costs ... with **MOTO-TRUC**

Just drive your load onto any truck
... from pick-up to semi-trailer ...
position it quickly and precisely.

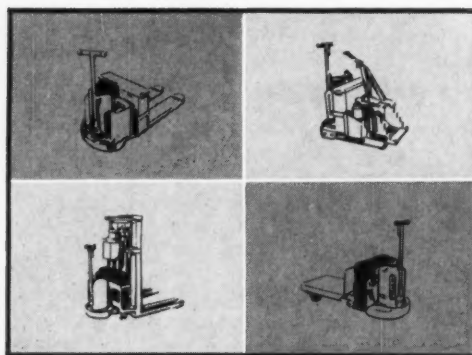
You'll be amazed at the
maneuverability and fast handling
that are yours with Moto-Truc.

Their rugged, compact design
makes the big difference.
They work efficiently ... last longer
... need fewer repairs.



The
MOTO-TRUC
Company

12403 TAFT AVENUE
CLEVELAND, OHIO



*Largest Exclusive Manufacturer
of Walkie Trucks*

PRODUCT NEWS

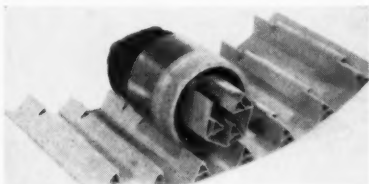
flexibility allows thermal cycling with conformance to MIL-T-27A Class T and U. Will withstand cold and thermal shock. Unusually low shrinkage for flexible resins says the manufacturer.

Permacel

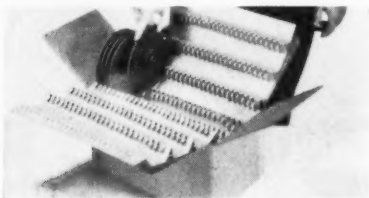
Circle 307 on Reader Service Card

Versatile Packaging Material

It's easy to adapt Sus-Rap cushioning to complex packaging needs. Example 1 shows use to provide both



a supporting core and wrap-around cushion for electric motor component. In example 2 fiberboard cushions are

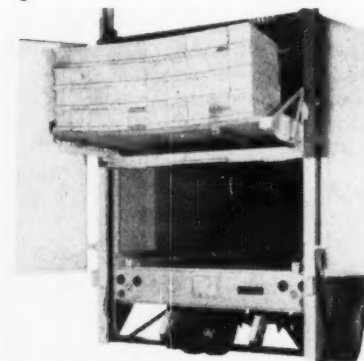


slotted, to hold, separate, and cushion discs. Maker offers service of developing ways to package products in this cushioning.

Vanant Company, Inc.

Circle 308 on Reader Service Card

System Loads Trucks Fast



Pallets that flex to grip load without straps, and roller tracks on the truck body to support the pallets are the main parts of Relae system for

faster loading. Special chutes at the dock, or fork lift trucks, or elevating mechanism mounted on truck, load pallets into truck van. Using chutes you load the truck with one man in 3 minutes, unload in 10; with fork trucks it takes 30 minutes to load, 20 to unload.

Kaplan Sales Co.

Circle 309 on Reader Service Card

Protect Wood Floors

Your trucks beat up your floors? Try a new oil-free urethane clear finish. Called Imron, it's said to provide wearability and gloss retention two to three times greater than conventional fine varnishes. Imron reduces upkeep cost. Its hardness and gloss prevent dirt from sticking. There's a high degree of oil and grease resistance.

DuPont Co.

Circle 310 on Reader Service Card

LP-Gas Filter & Solenoid Valve

New Filterlock FL-418, combination LPG filter and solenoid valve, has extra large coil for better service when hot weather boosts pressures. Mounting filter with valve reduces



weight 20 percent, eliminates fittings. New model has forged, recessed center plate to fit coil housing, "O" ring seal at fuel inlet bolt, and phenolic impregnated filter element. It operates in any position.

Beam Products Mfg. Co.

Circle 311 on Reader Service Card

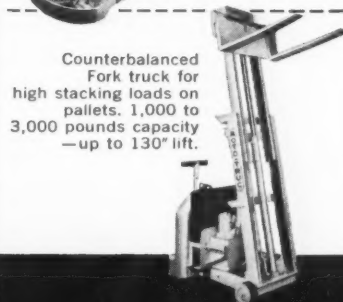
Vibrating Screen Improvement

You can get horizontal vibrating screens with integrally-mounted motors. Motor base and tubular cross member become an integral part of the screen frame. Company claims these advantages: elimination of overhead structure; reduced head room; increased belt life due to close fixed centers; shorter belts which overcome

Continued on page 52



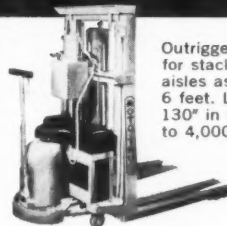
Low lift pallet truck for horizontal handling of loads on pallets. 4,000 and 6,000 pounds capacity.



Counterbalanced Fork truck for high stacking loads on pallets. 1,000 to 3,000 pounds capacity — up to 130" lift.

MOTO-TRUC

Walkie Trucks



Outrigger pallet truck for stacking from aisles as narrow as 6 feet. Lift to 130" in capacity—to 4,000 pounds.



Tractors for all towing jobs with draw-bar pull to 700 pounds. Models to handle trailers, live or semi-live skids.

Write for free Moto-Truc "walkie" catalog... ask for Bulletin No. 56W.



World's Largest Manufacturer of "Walkie" Trucks

The MOTO-TRUC Company

12403 Taft Ave., Cleveland 8, Ohio
Circle 85 on Reader Service Card

PRODUCT NEWS

whipping wear, and elimination of making time and cost-consuming motor alignments in the field.

Allis-Chalmers

Circle 312 on Reader Service Card

Compact Fork Lift Trucks

New electric fork lift trucks are only 33- $\frac{3}{4}$ in. wide. They fit light to medium load-capacity jobs in

grocery warehousing, large retail stores, light industry, boxcar loading. Three models in RST series have 2,000, 2,500, and 3,000 lb. capacities. RST-20 illustrated, has 68-in over-all mast height, stacks 105 in. high. Each model has 3 wheels, pivots at center of load axle because one wheel rotates clockwise while other turns counterclockwise. This saves 5 in. of aisle space. Foot controls for lift, tilt, travel, and braking, with accelerator and brake operating from one pedal. Dual tilt rams give extra support to uprights for safety.

Features Class H silicone-insulated motors, quick access to batteries from

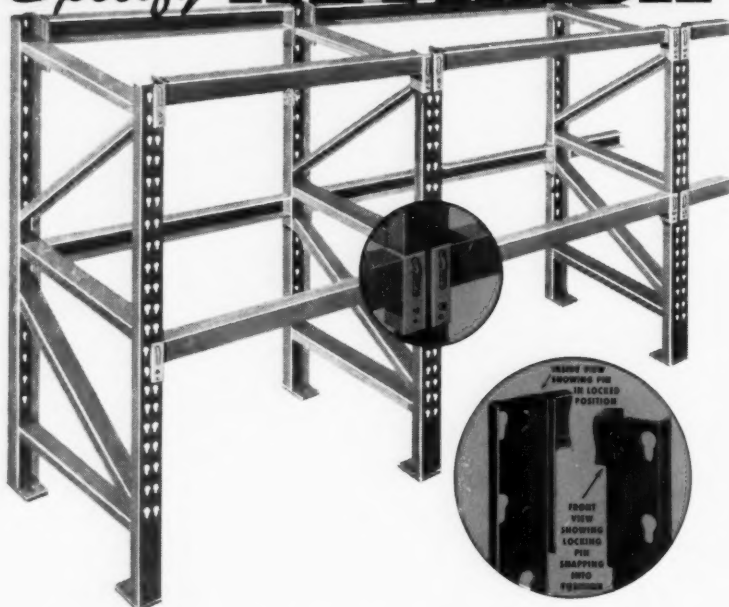


side or top. Many parts interchangeable with those for maker's walkies.

Automatic Transportation Co.

Circle 313 on Reader Service Card

Specify **KEYRACK**



RUGGED, 2-PIECE STORAGE RACK WITH BUILT-IN SAFETY LOCK *

An engineering achievement in storage racks. Now you can easily erect a storage rack in your plant with minimum effort and maximum use of cubic area. Safety locking device automatically snaps into position affording protection against accidental impact by lift trucks or equipment. Just tap into place (see insert) you do not have to touch the lock. Observe the positive locking action! All Keyracks are provided with heavy gauge channel bracing.

OTHER PRODUCTS OF STORACK CORP.

STORACK — A metal bolted framing rack, for the exceptional storage application.

RACKS THAT STACK — Specially designed for coils, bar stock and pipes.

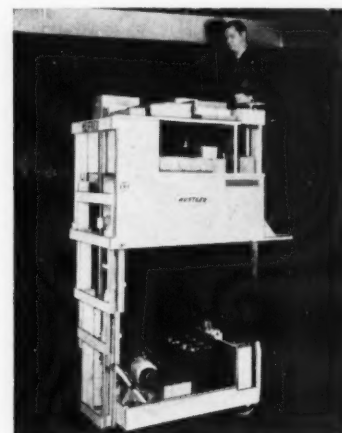
* PATENT APPLIED FOR



Circle 118 on Reader Service Card

Stock Picking Truck

Bin Selector truck raises operator and load platform to shelf level for order-picking. Vertical travel is 49 $\frac{1}{2}$ in., puts driver's eyelevel at about 10 ft.



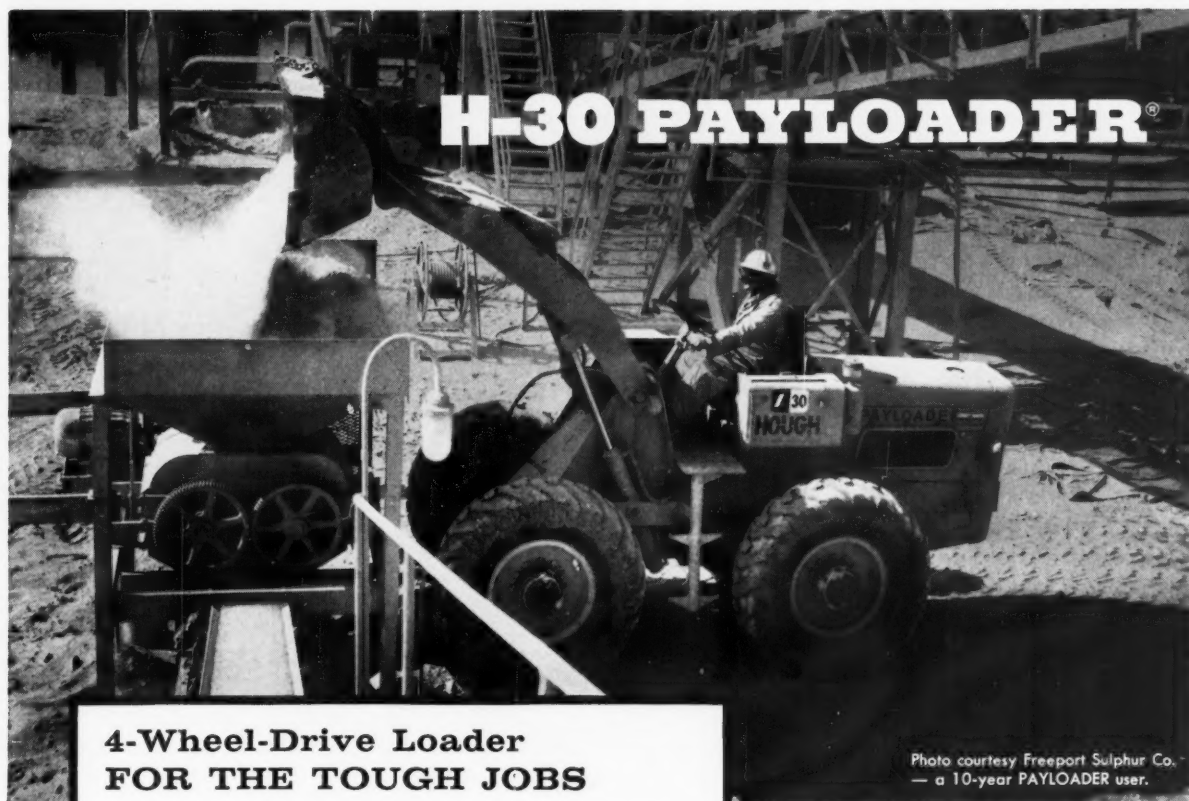
above floor. Weighs a ton, carries 1,000 lb. including driver, occupies space 31 x 64 in., and works in 36-in. aisle. Electrically powered, has 3 speeds forward or reverse, to 5 m.p.h. Drives are 24v. Can be furnished with greater lift height.

The Heifred Corp.

Circle 314 on Reader Service Card

**For more
PRODUCT NEWS
turn to page 98**

MATERIAL HANDLING ENGINEERING



4-Wheel-Drive Loader FOR THE TOUGH JOBS

The Model H-30 was introduced a year ago and has been so successful that many owners have already purchased additional units. Although it is the smallest 4-wheel-drive PAYLOADER, it has an operating capacity of 3,000 lbs. and the latest improvements and features found in the larger models—is way ahead of all other loaders near its size.

Traction and Digging Power: 77½ h.p. gasoline or 71½ h.p. diesel engine and 4-wheel drive on big 12:00x24 tires, plus torque-proportioning differentials, give it outstanding digging and go power indoors or out.

Fast, Safe and Easy Operation: Full power-shift transmission plus torque converter give 3 speed ranges in each direction up to 25 m.p.h.; instant on-the-go fingertip shifting (no foot clutch); power-steer; safety boom arms (all moving parts ahead and clear of the operator); sealed 4-wheel brakes (hydraulic) give positive braking and low maintenance; "operator's choice" dual brake pedals permit braking with and without transmission engaged.

Fullest Operator Visibility: Simplified boom design and slope-down front end let operator see the bucket action at all times and give him excellent all-around visibility.

Easy Servicing, Low Maintenance: Battery, engine and other points easily accessible; sealed, pressurized hydraulic system plus double filtering.

The Tougher Your Bulk-handling requirements, the more you need PAYLOADER dependability. A Hough Distributor is ready to give you complete data on the H-30 or any other of the 20 models—from 2,000 to 12,000 lbs. capacity. He also has the finest service in the rubber-tired loader industry.

HOUGH, PAYLOADER, PAYMOVER, PAYLOGGER and PAY are registered trademark names of The Frank G. Hough Co., Libertyville, Ill.

Photo courtesy Freeport Sulphur Co.—a 10-year PAYLOADER user.



A Fork Lift Attachment is available for the H-30—6,000 lbs. capacity and lifting heights up to 21 ft.

HOUGH®



THE FRANK G. HOUGH CO.
LIBERTYVILLE, ILLINOIS
SUBSIDIARY INTERNATIONAL HARVESTER COMPANY



THE FRANK G. HOUGH CO.
731 Sunnyside Avenue, Libertyville, Ill.

- ☐ Send data on H-30 PAYLOADER
☐ Send data on other models and attachments

Name _____
Title _____
Company _____
Street _____
City _____ State _____

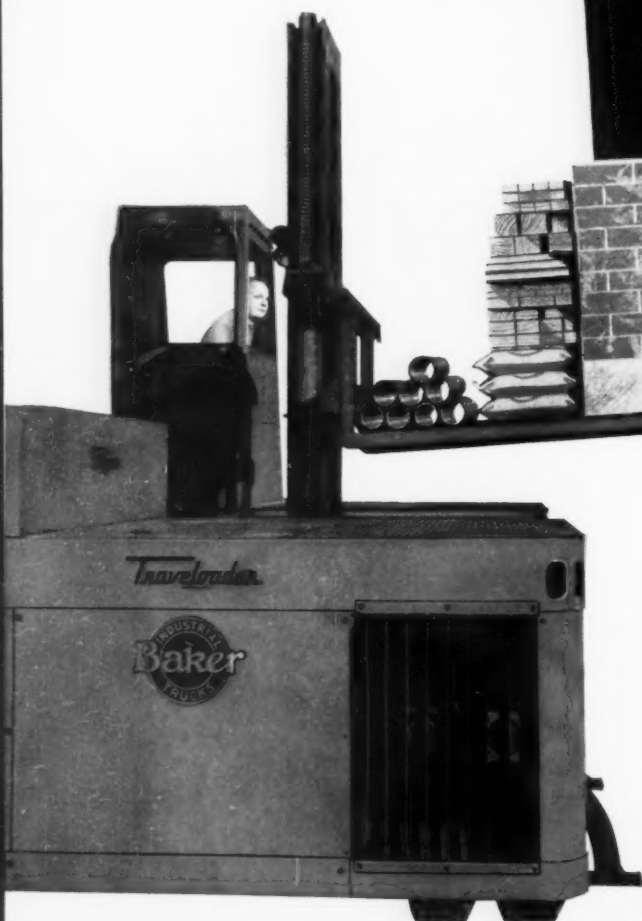
6-B-3

THIS WEEK... BAKER INDUSTRIAL TRUCKS WILL MOVE 9,600,000 TONS OF MATERIALS

Lumber, and other construction supplies, form a substantial part of this gigantic mountain of materials. In fact... Baker moves materials of every description—and has for more than a century. Some Baker trucks bought as long as 50 years ago are still giving faithful service.

■ Long service and dependable workmanship are *built-in* features of Baker's TRAVELOADER®. Its unique ability to pick up loads from the side, carry them lengthwise and unload or stack from the side, opens up a new concept in mechanical handling of long, unwieldy, or bulky loads.

■ Whether you buy or lease, Baker's complete, modern line of gas, LP gas, and electric fork trucks—front and sideloading—can cut your materials handling costs. Let your Baker dealer show you how. Write for details.



The tonnage Baker trucks move every week equals the approximate weight of the lumber in 600,000 6-room houses.

Write for free illustrated manual on fork truck safety-operating hints. Get one for each of your drivers. Baker Industrial Trucks, 8019 Baker Avenue, Cleveland 2, Ohio.

A DIVISION OF OTIS ELEVATOR COMPANY
Baker **BAKER**
BAKER INDUSTRIAL TRUCKS • CLEVELAND 2, OHIO

JUNE 1961

WHITE ELEPHANTS **they couldn't hide**

*A fable about the pale pachyderm,
and why the bulk of the beast
is proportional to the size of the system*



NOBODY WAS LEFT at the White Elephant's cocktail party but the White Rabbit.

"I don't give a hoot whether you *are* a star of stage, screen, and television," the Elephant was saying, "I'll still say that we white elephants in material handling get more recognition from important people than white rabbits do these days."

"I don't doubt your word necessarily, but I need proof," said the Rabbit. "Do you have proof?"

"Of course I have proof," said the Elephant. "First, do you *really* know what material handling is?"

"It's handling material," shot back the Rabbit. Pleased with his quick thinking, he poured another martini from the pitcher.

"That's the obvious answer, but you're only part right," said the Elephant. "Material handling really means controlling product flow from raw material through manufacturing, into storage, and through dis-

tribution to the final customer."

"So you know a definition, which proves nothing." The Rabbit dropped a chunk of carrot into his glass. "What I want to know is, how does this material handling fit into the recognition of your activities, white-elephantwise?"

"It all ties together, as you'll see shortly. But I want to begin by saying that we white elephants have been in material handling from the start. The funny thing about it, in the early days there were a lot more of us but nobody recognized us as white elephants; nowadays we are fewer and everybody spots us like *that!*" The Elephant snapped his trunk so sharply that the Rabbit hopped right over the table, martini and all.

"I spilled some," he said accusingly. He paused to remember where the conversation had left off. "Ah, yes. If you don't mind, I should like an explanation

WHITE ELEPHANTS

of your last statement and some proof to back it up. Otherwise I shall be forced to conclude that your argument has no validity." He said this in a nasty tone of voice because he was peeved at the Elephant for scaring him.

"Please don't get huffy," said the Elephant, for he was a very easygoing fellow, as most white elephants are. "I was just trying to bring home the point about how material handling has *changed*, and how everybody has to look at it differently now, including us white elephants. Here, let me fill up your glass."

"I don't mind if you do," said the Rabbit.

"Now, let me tell you about white elephants in material handling from the beginning," said the Elephant, pouring.

"I'm all ears," said the Rabbit, drinking.

"In the very early days of material handling," said the White Elephant, "there were many of us, and we roamed untamed in the wilds of industry. Few people tried to hunt us down because they didn't know how. More than that, they didn't even know we were white elephants."

"This was kind of a blow to our pride. It's no fun to be a white elephant unless you're recognized as one. But in those days there weren't enough material handling specialists to track us down."

"Very shattering to the ego, I'm sure," said the White Rabbit.

"In those days," the Elephant continued, "the president of a company might meet his fellow presidents at the club, and one of them would say, 'Charlie, today I mechanized my plant. I bought a fork lift truck!' And Charlie would fret all through lunch, and then he'd rush back to his office, and he'd telephone a truck manufacturer and he'd say, 'Send me out *two* fork lift trucks!'"

"Well, it might be that Charlie's people weren't stacking anything in the plant, and they didn't have unit loads, and the trucks were kept running only part of the time, so they didn't really solve any handling problems for him. But they gave Charlie something to talk about at the club."

"That's nice," said the Rabbit, absently. He was busy sneaking another martini and hadn't been paying attention.

"No, it's not nice!" shouted the Elephant. "There we were, real white elephants in Charlie's plant, and he never knew it! Oh, the embarrassment of it all."

The Elephant shook his head sadly, then brightened. "But things weren't always that difficult for us. Even in the early days, there were situations that showed us up in our true colors."

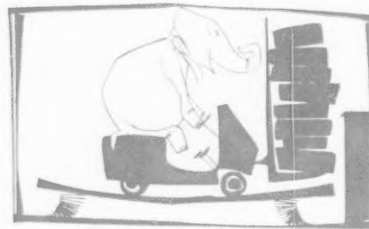
"I don't think white is a color," said the Rabbit, with a frown.

"A good example is a case I call *The Rare Affair of the Robust Rider*," said the Elephant, ignoring the interruption. "It was *rare* because the white elephant was spotted right away. The *robust rider* part of it describes the rider truck that was too hefty for the job."

"This incident took place at a company which had a Plant 1 and a Plant 2 and a lot of other plants, and

the plant managers kept an eye on each other so that nobody would try to look better than the rest to management.

"So when Plant 1's manager heard that Plant 2's manager had bought a 4000 lb. capacity fork lift truck, he rushed over to Plant 2 and wrote down the make and model of the truck. Then he rushed back to his



purchasing agent, tossed him a crumpled piece of paper, and said, 'Get me one of those fork truck things—and get it now!'"

"So the purchasing agent (because he had no material handling engineer to guide him in those days) called up a truck salesman and bought a gas-powered, rider-type, center control, high-lift truck with a 4000 pound capacity, just as his manager told him to."

"And they all lived happily ever after," asked the Rabbit. *Some people never learn how to get to the point of a story*, he thought.

"You don't understand," said the Elephant. "This fork lift truck was one of us, and nobody lives happily with a white elephant. Except maybe another white elephant."

"So they found your man out?"

"Yes, and easily, even for those days. The manufacturing floor was above ground level and had to be reached by elevator. Well, they got this elephant—I mean, truck—onto the elevator and started up, and instead it sank,—ka-boom, to the basement. Nobody had figured that the elevator wasn't built to carry 4000 pound capacity lift trucks."

"Elevator, shmelevator," said the Rabbit. "I'll bet they got around that by taking the truck up in sections. They probably re-assembled it on the manufacturing floor, and everybody worked happily ever after."

"Hah!" snorted the White Elephant, as only an elephant can snort. "Hah! You're wrong! The main floor was made of wood and it had a capacity of 125 pounds per square foot and the aisles were only six feet wide. That did it. The breakthrough was made. Recognition was paid this truck as a real, honest-to-goodness white elephant that the company had wasted money on and had to claim as its very own!"

"May I have another carrot in my martini?" asked the White Rabbit.

"Of course. As I was saying, from this kind of humble beginning, we white elephants followed the progress of material handling as it developed and gained in popularity among companies. You see, we found out right away that the bigger *system* you have, the bigger *white elephant* you have a chance to own. I should like to give you an example from what I call

the middle period of material handling, a few years ago, when companies were starting to think about it as a remedy for *all* their problems."

"Please do," said the Rabbit. "But before you start, I notice that the unnaturally large carrot you dropped in my martini is only half submerged in liquid. Would you do me the courtesy of pouring more liquid so that the *whole carrot* is completely submerged?"

"I call this next example *'The Problem of the Proudful Production Prophet'*," said the Elephant, working feverishly to keep the Rabbit's glass filled.

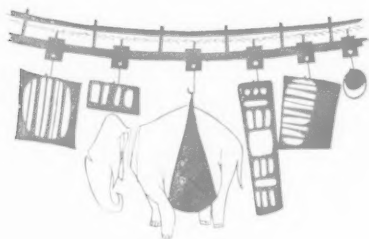
"It seems there was a manufacturer of large appliances, who used a great number of component parts, as appliance manufacturers do. Now, the manufacturer had a production control manager who said, 'Material handling is the answer to storage of incoming parts. We won't set aside any storage space; we'll just hang the parts on a conveyor that will take them right to production. And with my production control skill, I will schedule incoming parts to match production needs exactly.'

"So the company installed seven miles of overhead conveyor and hung every part that was received on it, and eliminated storage altogether."

"Sounds very nice," said the Rabbit.

"And it was very nice, for us white elephants," said the Elephant. "When it got right down to making the system work, the vendors would sometimes miss their schedule, or a truck would break down, or production would speed up, and a lot of other little things happened that kept the production control system off-balance. Far enough off balance, as a matter of fact, to make the company rent storage space down the street."

"And that made a white elephant of seven miles of conveyor!" exclaimed the Rabbit. He prided himself on being a fast thinker.



"Right. As you can see, we white elephants got bigger and more expensive during material handling's middle period than in the beginning. But it's even better nowadays. Why, today a good white elephant who knows his business can cost a company a million dollars!" The Elephant smiled proudly. "We had a real humdinger at a government installation not too long ago, which I'll be happy to tell you about."

"Let's drink to that," said the Rabbit, suiting action to words.

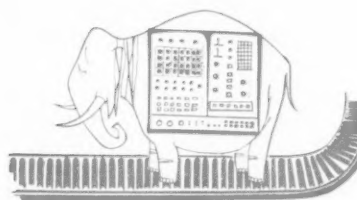
"This was a supply center with a mechanized order picking system that could handle over 20,000 items a day," the Elephant went on. "The inventory control

was done by a giant electronic computer system that could handle over 3500 transactions an hour. This was a compatible system if ever I saw one."

"You are referring to systems compatibility between mechanized material handling and electronic data processing perhaps?" the Rabbit asked precisely. This was not easy because his tongue had suddenly grown fur.

"No, the compatibility I mean is between the system and us white elephants," answered the Elephant. "It had a number of things that were very helpful to us."

"For one thing, the serial numbers and prices of the items were changing every day, so they had to keep reprogramming the computer. Result was they couldn't use the computer more than four hours a day, and that wasn't enough to keep up with the order filling system. Besides, they had some breakdowns in the computer which set their output back at the



rate of 20,000 orders for every day of downtime, which they couldn't make up because of the continual reprogramming. So seven months later the system was identified as an *elephant, white, large scale*, and abandoned."

"Terribly fascinating," said the White Rabbit, after draining a last drop from the pitcher. "Your storytelling ability, sir, is exceeded only by your graciousness as a host." He started to bow, but the floor started rushing up to meet him, so he thought better of it and wagged an ear instead.

"One comment before you leave—I presume you *are* leaving—" said the Elephant, "and it pertains to the *moral* of the stories I have told you. It goes something like this:

"Material handling men are better informed these days and don't buy many white elephants when selecting individual pieces of equipment."

"The more complex and automatic the system, the bigger the white elephant it will be if there's faulty planning."

"There's a way to keep big, automatic systems from becoming white elephants. Make one man, at top management level, responsible for the total movement of material from raw stock to finished product in the customer's hands. *A manager of material flow and the systems approach will make white elephants extinct.*"

The White Elephant spoke these last words in a sad, slow whisper. So sad, in fact, that the White Rabbit had to turn and rush out into the night so the Elephant would not see the tears in his eyes. Or the bottle under his coat. ♦



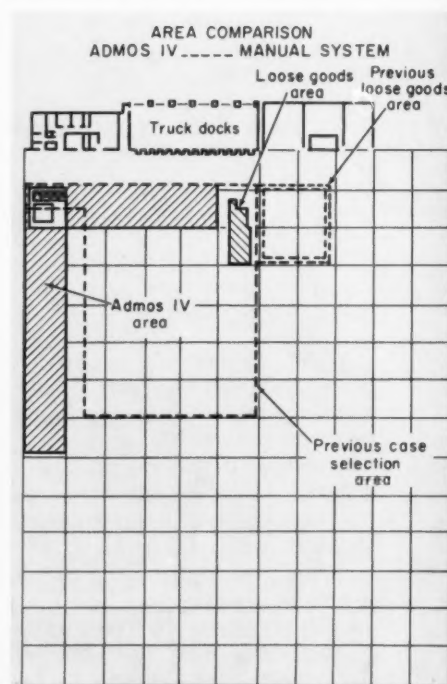
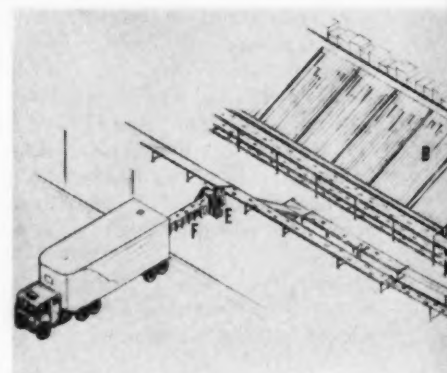
1. **YOUR VIEW** as you stand at the intersection of the two wings of the order-picker shows all the principal parts. This "automatic device for mechanized order selection" was designed, built, and installed by ADMOS, Inc., Detroit 5.

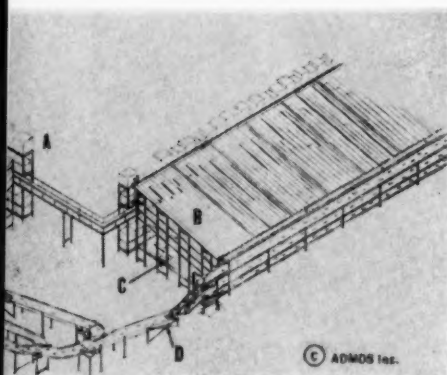
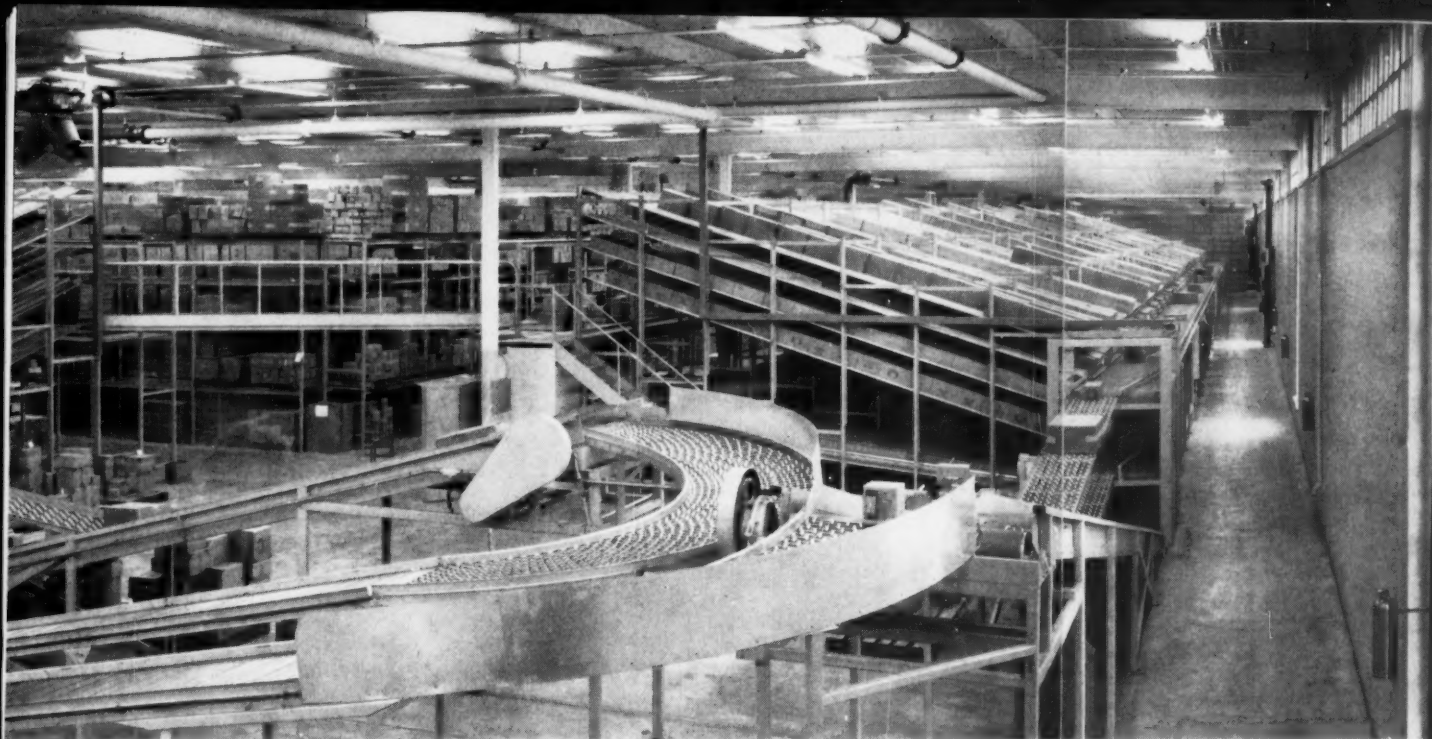
Giant order filler fights high distribution costs

ADMOS MK IV, punch-card controlled, can load 1,800 cases an hour right into the trailer—pays out over 25% on capitalized investment

ADMOS MK IV is a weapon, one of the newest, in the war against high distribution costs. Operating at Johnson & Johnson's Brunswick, N. J., shipping center, this giant machine can automatically select, check, and load 1,800 cases an hour. It now handles over 650 different items, has a built-in capacity of 2,000. On its live storage chutes and conveyors it holds 85,000 cases of various sizes and shapes.

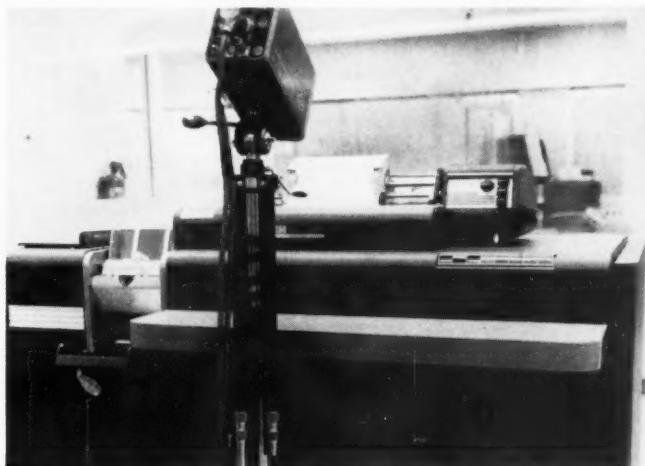
Yet neither this huge number of line items, nor MK IV's ability to earn 25% on investment are the machine's most exciting features. You'll find that its speed, the simplicity of its components, the fact that it is genuinely one *system* from back-up storage to truck loading, and above all, *that it requires no order accumulation areas* are the notable characteristics of the installation.





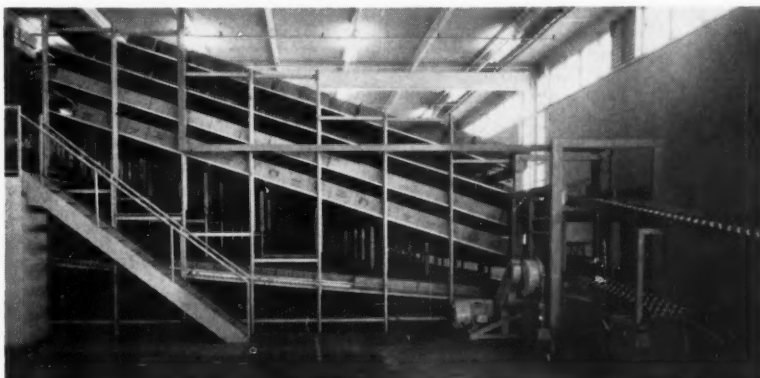
2. CHIEF COMPONENTS of the installation in correct perspective: a) Backup stocks, palletized, on racks; b) Live racks (chutes) for order selection; c) Live racks (gravity rollers) for heavy items; d) Conveyors; e) Operator's control console, labeling with addresses; f) Conveyor goes into truck for loading.

3. THE MACHINE saves 30,000 sq. ft. Broken lines enclose the 50,000 sq. ft. area previously required for hand order picking. Shaded blocks show you the 20,000 sq. ft. taken by the order-picker, and by its smaller, mating mechanized selector, a "baby ADMOS", which handles broken case lots (600 line items).

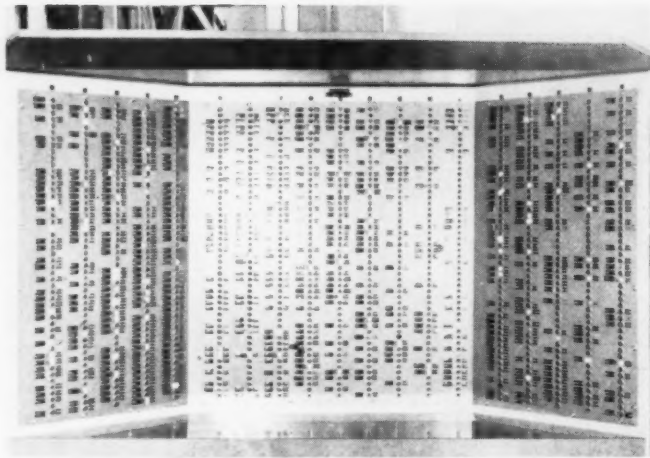


4. OPERATION is simple. A card reader in the office reads order from punched cards. This converts order information into electrical impulses which work the order-picking machinery. A searching system locates the required stock, the circuits then trip the chute releases allowing items to move on to dock bound conveyors traveling at 450 f.p.m. For rush orders a manual control overrides automatic operation, enabling the operator to select items by pushing buttons, like running an adding machine.

5. LIFT TRUCKS stock the live racks from the rear, off pallets. The 27-ft. racks hold a generous supply, and work in tandem if volume requires — 85% of the items need be restocked only once in 2 weeks, 6% weekly, 6% twice a week, 3% daily. There are 9 levels of storage chutes.



GIANT ORDER FILLER



6. **THIS BOARD** controls restocking. Lights on it are lit by limit switches on the live racks to show when racks need replenishment. A radio-dispatched lift truck restocks the rack at once.



10. **CASES TRAVEL** on conveyors moving at 450 f.p.m. after leaving the racks, but as they approach the control console, live roller conveyors slow them to 75 f.p.m. for checking and addressing. The streams of cases from different levels and racks merge in the simplest manner, without complicated gates, electric eyes, or counters. Greatest conveyor width is 5 ft.



7. **THE SHEET METAL** chutes have 6 widths, from 6 to 30 in. They hold packages varying from 6 x 6 x 6 to a top size of 14 cu. ft. weighing 50 lb. Patented adjustable antifriction runners control the descent speed of the cases, and simple, trouble-free electromechanical trips release stock. It is easy to change either chutes or runners to suit different sizes and weights of packages.



12. **AT THIS CONSOLE** near the truck dock the operator on the floor has complete control of the system. He checks orders, aided by a closed circuit TV and specially designed electric eye counters. These tell him when an item is in short supply so he can radio to stock control for immediate replenishment. At this point he also addresses each package.

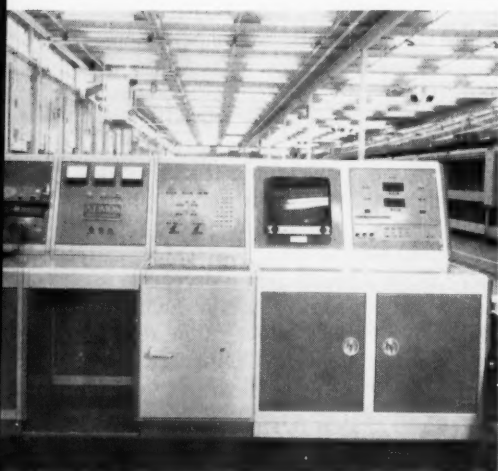


8. ALL WIRING is in harnesses, as on your car, so it is easy to service. Panels at the racks control each bay, and panel wiring is board-mounted, like computer panels. This simplifies changeover when required by changes in chute widths, etc.

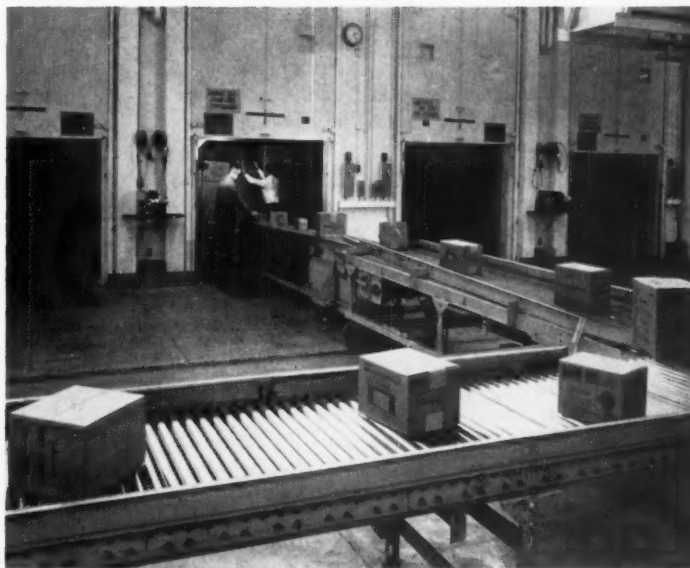


9. THE HEAVIER ITEMS (over 35 lb.) are held on gravity roll-conveyor racks, the lowest of the 5 storage tiers. A huskier electro-mechanical release controls flow from the racks. (The modification of the release for the lightest cases can be seen in picture 8).

11. FLOW OF CASES from the various rack levels merges at top speed. A system of interlocks prevents jams or mishaps. If any one of the 14 conveyors stops, the card reader stops and halts the whole system. To test all electrical circuits the operator runs a test set of punched cards. Trouble, easily pinpointed, can be corrected with the least downtime.



13. CONTROLS at the console are, left to right: inter-com, and radio for talking to stock replenishing fork trucks; master electric controls for the whole system; push-button picking, and circuit tests; closed-circuit TV, viewing card reader to tell operator when cases ordered match cases picked; readouts in which numbers appear to show whether order quantity matches electric-eye count.



14. A RETRACTABLE, mechanized bridge and extendible conveyor shunt completed, addressed orders directly into trailer. The computer calculates cube and weight of load components for each truck load, and also puts components in last-on first-off sequence, for quick loading and unloading. ADMOS MK IV selects and assembles orders item by item, one order and one trailer at a time. Thus there is immediate loading, and docks are clean, with no appreciable accumulation area. Loading a 35-ft. trailer with up to 900 miscellaneous cases takes only 30 minutes.

*Fourth Project Upgrade article explains how
MH is a control function — by
understanding controls you advance your
career in MATERIAL FLOW MANAGEMENT*

MATERIAL HANDLING— a control function

By E. RALPH SIMS, JR., Consulting Management Engineer

IF WE ANALYZE business operations anew, ignoring static textbook definitions of the various elements, we find business divides into three basic activities:

1. Creation

- creation of demand by salesmen
- creation of product by designers and product engineers
- creation of facilities by plant and industrial engineers

2. Fabrication

- conversion of raw material into processed materials
- conversion of raw and processed materials into parts
- conversion of parts into product

3. Control

- general management control of the business
- financial control of operations
- production inventory, and cost control in manufacturing
- material control in purchasing, storing, distribution, and material handling

When business is thus viewed it becomes evident that all elements of management fall in the control field, since they neither create nor convert product or demand. Material handling is definitely a control function, but where does material handling fit into the business picture?

The existence of materials is commercially described as inventory. Inventory includes raw materials, material-in-process, finished goods, stocks in transit, jobber, distributor, and retailer stocks. The significant fact is that *inventory is material in motion or storage which must be controlled, but which is neither being*

changed nor causing changes, and which is not accumulating value as a result of productive work being applied to it. This analysis makes it obvious that material handling is a control function.

MH Equipment Controls Material

Material handling equipment controls the place and condition of the material, and often changes its place and condition while controlling these factors. Equipment often transports and stores simultaneously, as do conveyors, railroad cars, ships and trucks. It may improve the condition of the product, as warehousing corrects the moisture content of printing papers. Some devices both transport and count or measure, as do scale-equipped lift trucks and conveyors. Protection from weather, temperature change, deterioration, or pilferage can also be functions of material handling equipment, as in the case of refrigerated trucks, cold-storage warehouses, hoppers, tanks, and unit containers.

There are few situations, however, in which the handling equipment as such does anything creative to the material. The control aspect of material handling lies in maintaining the location, count, time scheduling, confinement, protection, and identification of the material.

MH and Management Decisions

Looking at material handling as a control function shows us that the equipment really implements management policies and decisions. The major purpose of the material handling activity is to control goods, materials, and products, in their flow from mine to consumer. By means of this control management attempts to keep the amount of material in transit, in storage,

and in process as low as possible consistent with the desired finished goods output; this minimizes dollar lock-up and handling expense.

MH Makes Materials Meet Schedules

Another control aspect of material handling is its part in the regulation of flow, volume, frequency, and elapsed time in the movement of materials and products. This control of movement is vital to production control in manufacturing, and to the functions of distribution and marketing. A simple example is the holding conveyor that precedes a manufacturing operation; parts or tote boxes accumulated on this conveyor are released at predetermined intervals so they enter the production cycle exactly when they are needed. The same procedure governs truck and car loading, order filling, packing, and other distribution activities. MH equipment can also compensate for differences in the handling capacities of successive steps in production or movement. If lift trucks unload a drag line conveyor, the load capacity of the conveyor can be scheduled to absorb load densities greater than the trucks can immediately unload; the drag line carts can be recirculated with their loads, or parked in a holding area, until the lift trucks catch up and balance the input-output capacities of the system.

Objectives of Controls

In applying these control concepts as a material handling engineer you must first recognize the objectives of controls. Manufacturing and financial controls serve as value and meters to govern the flow of money in the business system. Inventory records act as a level gage in the surge tank of the system. (The current items of the financial statement are similarly a monetary surge tank, and the balance sheet is the level gage for finances.) Production controls act as valves which release materials and products into the system to maintain a smooth flow. The cost control standards can be compared to the limit marks on gages which define normal readings in the flow system. Budgets serve as meters and valves in the financial control of the company.

Thus the manager can manipulate the valves (production and budget controls) and read the gages (inventory and financial statements) to operate the sys-

tem according to a planned norm (established by the cost and standard system).

Capitalize on the Control Concept

The material handling engineer can gain by understanding these relationships. He should see his warehouses as surge tanks which should normally be nearly empty, never stagnant. He should think of his conveyors as pipe lines normally carrying closely controlled, regular flow with no surges. He must use his lift trucks and other mobile equipment as the tank trucks of the system, capable of moving product units or material with random access into the system.

If he takes this view the material handling engineer can assist management by balancing the various elements of the material handling system. In this way he implements the management decisions which grow out of the meter readings (inventory and financial control), and helps to carry out these decisions through the release and movement (valving) of the product.

To perform in this role the material handling engineer should develop a broad understanding of the principles of inventory management, work standards, standard costing systems, and the cash flow principle of management. He should understand the principles of product on control and be thoroughly familiar with his company's production and inventory control policies and budget practices.

Once the MH man understands these aspects of control he can greatly increase his usefulness to management. Management effectiveness in manufacturing and marketing organizations can be no better than prevailing control procedures permit. The MH man who thoroughly understands management intent, and the reasons for this intent, can help the managers get quicker, better results because he can help devise more effective procedures, more responsive equipment systems.

The speed of response will be noticed. From where top management sits organizations usually seem slow, balky, stubborn when the order goes out to increase production, or trim inventories, or improve turnover. The man who can implement decisions regarding material flow management, quickly and easily, is sure to be marked for greater responsibilities. ♦

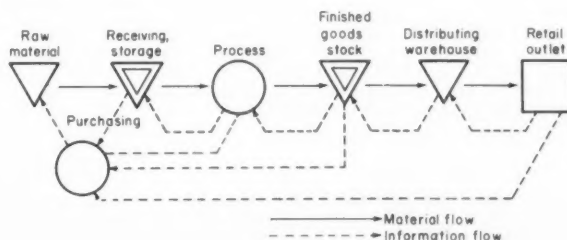
Putting the CONTROL CONCEPT into PRACTICE

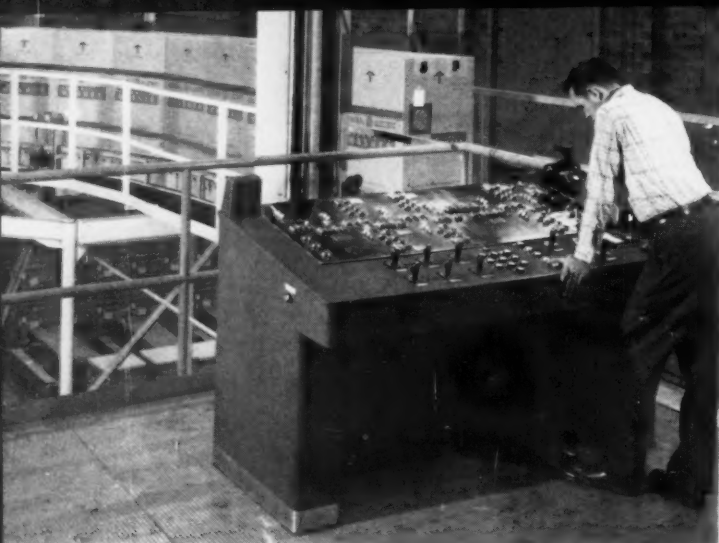
BECAUSE YOUR OPERATION is different, nobody can tell you in a few pat words how you can use Ralph Sims' idea of control.

But if you study the subject as he suggests, with needs of your own operation in mind, you will find specific situations in which it will help you. Suppose, for example, your management says "Get inventories down." As manager of material flow, you first take the obvious steps, then decide to see what more you can do by applying the control concept.

Some diagrams will help you to bring actual problems into focus. Sims says: "The major function of the material handling activity is to control goods,

materials, and products from mine to consumer." That's a pretty big picture. Put in some details, and you get this:

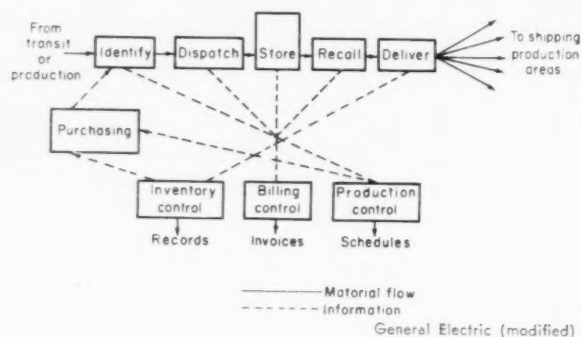




General Electric Co.

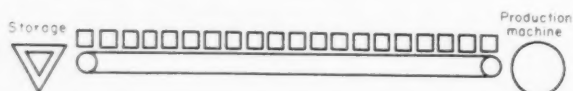
SWIFT MOVEMENT and accurate control, either automatic or manual, make handling and inventory cost less for manufacturer.

Plainly, even this is too much, but it might suggest that we take a look at the activities in the vicinity of "Receiving, Storage" and "Process." A good diagram from General Electric, modified to include purchasing, provides a more detailed view of storage:



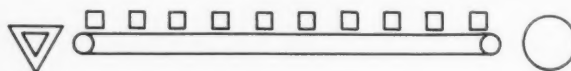
While this shows clearly how information flow and material flow must be linked, it is still necessary to choose a narrower area of activity. Remembering Sims' statement "Equipment often transports and stores simultaneously," we can take a look at one of the "To Production Area" transport lines.

Examining this we may find that the storage area is linked to a production machine by a conveyor, and that it is a carefully synchronized operation in which production accepts 30 units per minute. There are normally 20 units on this conveyor at a time, like this:



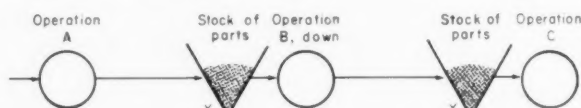
Thus 20 parts are "stored in transport." They tie up working capital just as parts on the shelf do.

Speed this conveyor, and you cut the in-process inventory. Double its speed, and it looks like this:

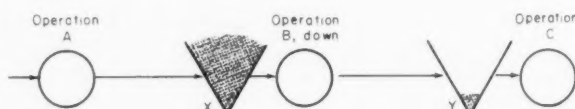


This is only a petty improvement, but if you change many operations you can reduce in-process inventory significantly. And the same idea applies to *all* transport—speed it up to reduce the inventory held in pipelines.

In your processing you may have places where parts accumulate, ready for process, at each machine. Here balance two principles—"keep the amount of material in transit, in storage, and in process as low as possible," and "parts accumulated . . . enter the production cycle exactly *as needed*." The normal might be sketched this way:



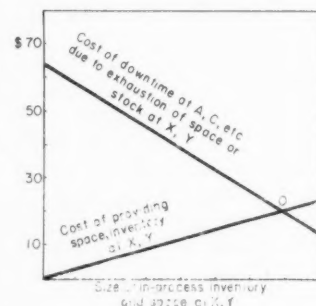
Each stock represents in-process inventory. These stocks are needed because they take care of emergencies when Operation B is down. For, say, adjustment like this:



If there is sufficient storage capacity at *x*, and enough in-process stock at *y*, neither A nor C will be shut down by the temporary interruption at B. B falls behind, but it can later catch up by overtime operation.

You have to determine whether the storage space and stocks at *x* and *y* are exactly right for the most economical protection against downtime at B. If you have not carefully considered the stocks, the chances are that someone set the levels by guess. If the operation is fairly continuous, the guesses are likely to be overgenerous.

To correct: classify the various reasons for shutdown of B, find out how frequent these shutdowns are, how long they last, and how much they cost if they in turn cause shutdowns at A and C, or further upstream and downstream in the production system. You will also need to estimate the cost of maintaining in-process inventory at B. Having done this, you can plot a chart to show the ideal float at *x* and *y* to minimize combined downtime costs and inventory costs. Your chart will look something like this:



Continued on page 65

To make this plot you may have to consider some rather difficult combinations of averages and probabilities. If you have a good quality control man he should be able to help you set up the figures. Once you have this it is easy to compute the point at which the curve for both costs combined is at a minimum (not necessarily 0). This correction will be valuable if stocks at x and y are bulky, high in value, or if this situation is repeated many times in your system.

These are some of the ways the control concept can be useful to you. There are many others. You will want to learn about the application of servo theory to inventory control, and how real feed-back devices are being used to control segments of inventory in some plants. You need to know the difference between standard accounting methods of measuring inventory costs, and actual costs as revealed in a cash-flow analysis (some inventory can really cost nothing!). These subjects and others provide the techniques you must have for efficient management of material flow. ♦

FOR FURTHER READING:

PRODUCTION PLANNING AND INVENTORY CONTROL, by John F. Magee. 334 p. McGraw-Hill, New York, 1958.

PRODUCTION AND INVENTORY CONTROL, by William E. Ritchie. 278 p. Ronald, New York, 1951.

MANAGEMENT ACCOUNTING FOR PROFIT CONTROL, by I. W. Keller. 436 p. McGraw-Hill, New York, 1957.

WORK MEASUREMENT AND ITS USES FOR MANAGEMENT, by W. Hewett, *Journal of the Institution of Production Engineers*, February, 1958, pp. 105-116.

GET THE MOST FROM PROJECT UPGRADE

Project Upgrade started with this question, in the December issue of MATERIAL HANDLING ENGINEERING:

Where will you be five years from now?

Part of the answer lies in the response you make to the suggestions you find in Project Upgrade articles, suggestions that will help you advance your career.

Each article has built understanding for those which follow. To get the most benefit from the series, be sure you are familiar with what appeared in February, March, and April, and you will want to read all the articles yet to come, which will deal with these topics:

Material Control and the Paperwork Problem—making office procedures and office automation work for you

Material Control and the Balance Sheet—basics of accounting, cost control, and labor standards that will help you

Controlling Material in Distribution—packaging, warehousing, traffic, transportation, marketing, analyzed from the material control aspect

Manager of Material Flow—the job function—what material flow management must accomplish

Manager of Material Flow—the man—the kind of man top management and personnel consultants will look for to fill this top job

WHO USES

Rubbair®

the true door . . .
not a curtain.

Door?



A Rubbair Door installation at the warehouse of S. Kann & Sons Company, Hyattsville, Maryland

THE S. KANN SONS CO.

Washington, D.C.

READ THIS ACTUAL CASE HISTORY:

In response to your letter of March 25, we are happy to inform you that we are very pleased with the Rubbair Doors that were installed about 3 years ago in our warehouse at 5620 Ager Rd., W. Hyattsville, Md. They have held up well and have satisfactorily performed their function of keeping cold air out of the building while allowing easy passage of merchandise through the doorways. If we were to build a new warehouse, we would duplicate the Rubbair door installation.

Sincerely yours,

B. B. Bergunder, Jr.
Vice-President

Use Rubbair Doors to assure trouble free operation . . .

- Flexible Construction
- Rugged V-Cam Hinges
- Safety Cushion Nose
- Positive Air Seal
- Shatter-proof Windows
- Scuff Resistant Wear Panels

If you have an industrial door problem, drop us a line and let us help you solve it. Write for details and free illustrated catalog, today.

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57 Regent Street
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Dealerships available in protected territories

Circle 117 on Reader Service Card

A nearly universal truck

An Exclusive MHE Report

By DICK DIETZ, associate editor



ATTACHMENT EASILY carries load of 12-ft.-long gypsum board from one end. Internal vacuum solidifies board into rigid mass inside corrugated carton. In top photo, attachment

with flexible cups lifts appliance in carton. There's plenty of room for a second carton side-by-side. These photos contrast internal and surface vacuum.

THE IDEAL lift truck attachment: a device that handles anything. Hyster showed us what probably comes closest—a vacuum-handling system for anything that can be enclosed in a reasonably impervious wrap or standard carton. It differs from previous vacuum developments:

- Vacuum capacity is greater and it builds up faster than anyone thought possible with equipment that fits unobtrusively on a truck.
- Easy controls for the driver.
- New front end design: basic plate, paper roll holder, and suction cup device (specially flexible cups with more holding power).

Hyster Company flew a score of prospective users to its Danville, Ill., plant for the first demonstration outside of Hyster's laboratory. Purpose, according to General Sales Manager Robert F. Moody, was to help Hyster decide on direction of development.

"It's not for sale right now," said Moody ruefully. "Wish it were. You're here to see what it does, not how. At no time will we open the hood, show you the insides. They're still secret."

What They Showed Us

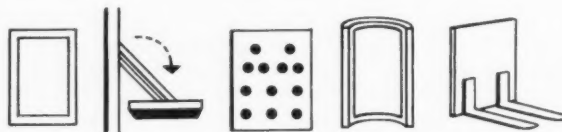
Three Hyster men demonstrated—Glenn Herz, vice president-engineering; J. R. (Dick) Aaron, supervisor of advanced design, and John Olson, engineer in charge of the project.

They showed us the face plate, a rectangle bounded by a plastic rim. It positions vertically or horizontally.

"This is our latest and possibly biggest attempt at revolutionizing an industry"—

—ERNEST G. SWIGERT, president, Hyster Company

Three other attachments slip over the face plate in seconds without the driver having to dismount. These are a 12-suction-cup device, a paper roll handler, and a fork attachment.



The attachments handle loads with surface vacuum or internal vacuum. For surface, the attachments suck against a solid surface and lift. For internal, you need a bag or wrap of some sort around the load. In seconds, the attachments suck out the air, draw in the wrap. Wrap and load make a solid mass which you can't pull apart by hand. The attachment then lifts the load, moves it without other support.

attachment

Some of the Possibilities

A driver with a 5,000-lb. truck put the attachments through their paces. (Aaron stressed that these were demonstration loads only; under no circumstances do they constitute the limitations of vacuum handling. Most loads were too light for the test truck, but the experimental model needed capacity to handle the heaviest of the test loads, he explained.)

LINER (PAPER) BOARD—4,000-lb. roll, 48 inches in diameter and 76 inches high. Tape, rope, or other ties can't affect vacuum seal. (This is *surface* vacuum).

APPLIANCES IN CARTONS—Driver, in seconds, changes to 12-cup attachment without dismounting. Easily lifts 200-lb. ranges, 325-lb. refrigerators in glued, slab-sided cartons (two to a load). Loads flex but remain stable and undamaged. Easily stacked. (*Surface*).

PAPER TISSUE IN CARTONS—Lightweight items are not necessarily easier to handle. Vacuum-cup attachment, however, easily lifts six cartons, 60 lb. each, with firm grip. (*Surface*).

FIBER DRUMS—Two small drums, weigh 100 lbs. each, easily picked up side by side with cup attachment. Can handle anything with fairly smooth surface. (*Surface*).

LOAD OF EMPTY CANS—Covered by kraft paper. Master attachment seals against one end, draws out air, solidifies 425-lb. load. Needs small hole through which air withdraws from kraft. Could be self-sealing or simply patched with tape for storage later. (*Internal*).

CANNED SOUP—Kraft paper surrounds 3,000-lb. stack of 72 cases. Lifts easily despite accidental small holes in wrap. Shape of load makes no difference. (*Internal*).

GYPSUM BOARD—Sixteen pieces 12 ft. long. Horizontal attachment picks up one end of corrugated package by evacuating air. Load solidifies, rises easily. (*Internal*).

BAGGED FEEDS—Interlocking load wrapped loosely in plastic envelope, weighs 2,100 lb. Horizontal plate seals against opening on top, evacuates air. Load becomes mass and lifts. (*Internal*).

Yes, But Is It Safe?

Shut off the power from an internal vacuum load—as they did for us—and watch it take several minutes for the load to drop from the attachment. This means there's plenty of time to lower the load mechanically if vacuum fails. Other safety aspects:

1—Load won't lift unless it's gripped by vacuum. With vacuum you either have a load or you don't. It's the pressure that ties the load to the truck.

2—Hyster built two vacuum systems into the truck and either will do the job.

3—Driver sees he has safe vacuum for lifting either by dial or by red light on mast. Off goes the light when you get the proper pressure.

4—Attachment won't let go of the load until the load is supported from the bottom, as when it touches the floor.

5—Action is gentle, protects fragile items. ♦

The Audience Wants to Know

The audience questioned Hyster officials and those from Container Corporation of America (which helped develop handling of cartoned appliances).

Q—Will the attachment be an accessory or will it mean a new truck?

A—It can perhaps be put on current Hyster lift trucks, but it will be cheaper to buy a new fitted truck.

Q—Will it cost a lot?

A—Estimated as close to the same as an attachment that does a similar job. But the total cost may be less because you can use a smaller truck. The load sits with a lower center of gravity and the attachment is light, enabling a smaller truck to pick up a heavier load.

Q—How about operating costs?

A—Probably no more than a truck with a conventional clamp attachment.

Q—Can an ordinary mechanic repair the system?

A—The equipment is not unusual. Maintenance will be no tougher than it is for present equipment.

Q—Can the attachment stack five high?

A—Very possible, depending upon load stability and basic lift truck model used.

Q—Will it handle 55-gallon steel drums?

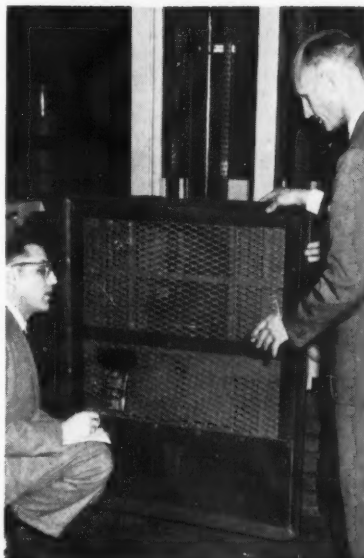
A—Easily lifted a 450-lb. drum. Even handled a battered, rusty one in the yard.

Q—What happens to internal vacuum if someone accidentally tears a 2-inch hole in the wrap?

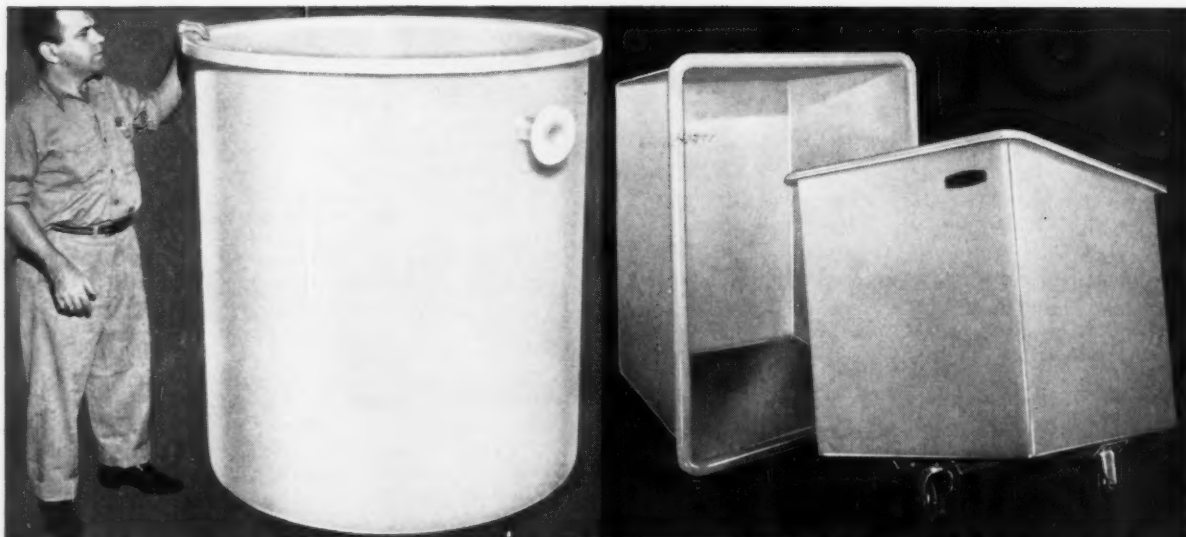
A—You'd lose the pressure, but slowly. You'd have time to deposit the load safely.

Q—What happens to the other suction cups when a load needs only a couple?

A—Nothing. Unit automatically uses only the ones required.

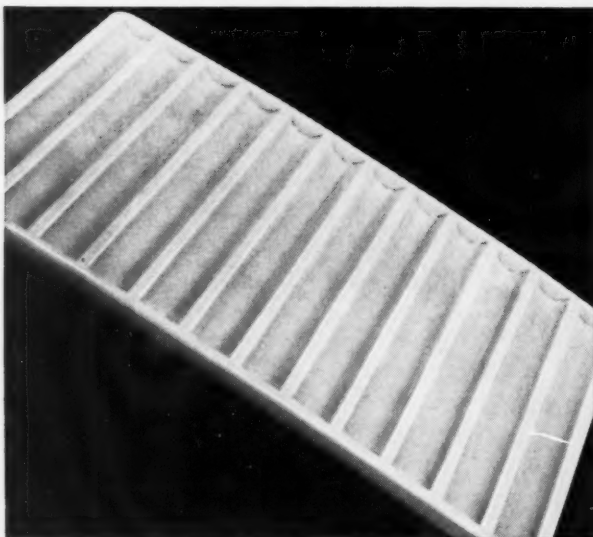


CUT OFF THE VACUUM and the load takes several minutes to drop. Actual test (above) shows bags of feed in plastic wrap just hitting the floor. Load was unitized by internal vacuum. Engineering Vice President Glenn Herz (right) explains face plate operation to MHE Associate Editor Dick Dietz. Small metal rectangle on the plate is a load sensing device, must be depressed before the attachment will work.

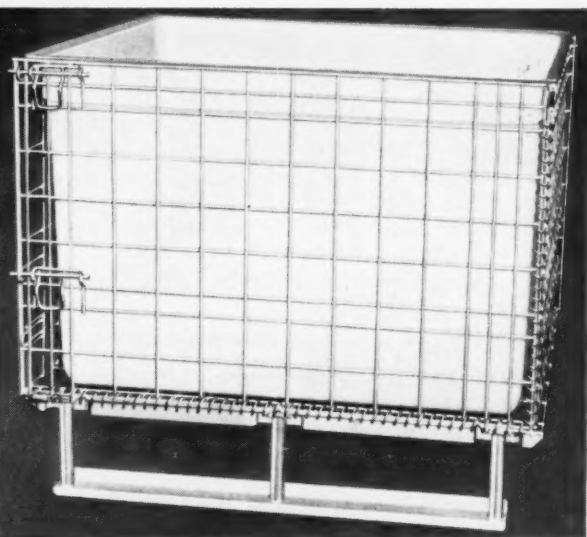


Easy-to-handle 350-gallon tank of polyethylene can be either fitted with a variety of polyethylene or conventional connections. Replaces stainless steel for many corrosive products. Various sizes of polyethylene tanks with lids or covers are available from *American Agile Corporation, Box 168, Bedford, Ohio.*

Rugged truck, 14-bushel capacity, of seamless polyethylene. Easy-to-clean rounded corners. High corrosion resistance. Various types of drains available. Running gear frame polyethylene-coated steel. Ideal for food processing. Load capacity 700 pounds. One of several standard sizes produced by *Rubbermaid, Inc., Wooster, Ohio.*



Seamless, easy-to-clean hamburger tray custom made of polyethylene for handling in-process inventory. Lightweight, unbreakable construction withstands rugged treatment. No color or flavor transfer. One of several specialized items of durable polyethylene available from *Space Structures, Inc., Chanhassen, Minnesota.*



This high-strength "Sanitainer" with folding steel mesh frame weighs only 170 pounds yet holds 2,000 pounds of food products. Polyethylene liner is sanitary, easy to clean. Tapered to nest for compact storage. Molded by *Amos Thompson Sintrex Division, Edinburg, Indiana*, for *Union Steel Products Co., Albion, Michigan.*

New Process Slashes Cost On Large Polyethylene Containers:

All of the specialized materials handling containers above are made by a revolutionary new process called Thermofusion*. Introduced in this country by Spencer Chemical Company, this process permits economical production of polyethylene containers in almost any size or shape—even in small quantities.

These rugged containers are corrosion-resistant, lightweight and easy to clean.

Because job-tailored containers can reduce your materials handling costs, it will pay you to discover the many advantages of these durable, low-cost thermoplastic containers.

Contact any of the companies mentioned above for complete details.

*Thermofusion is a service mark of



SPENCER
CHEMICAL COMPANY

Dwight Building, Kansas City 5, Missouri

Circle 115 on Reader Service Card

Fork trucks do everything but trample the grapes



MEIER'S WINE CELLARS, Silverton, Ohio, bought their first electric industrial truck to eliminate an unnecessary handling operation.

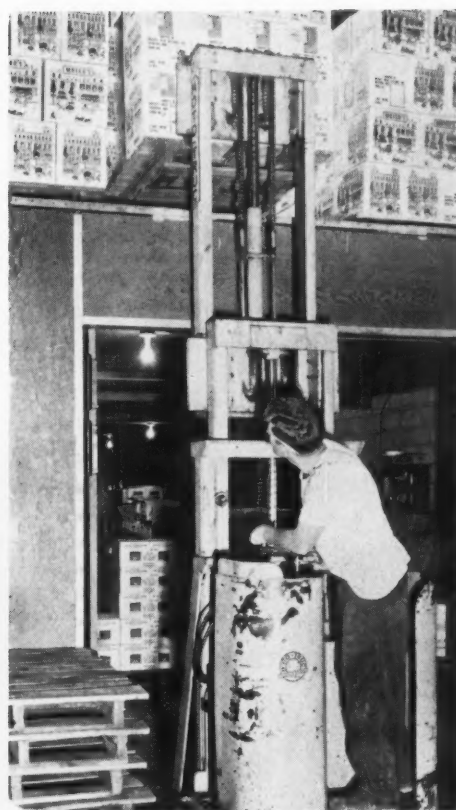
Grapes for the wine are picked in the company's own vineyards on Isle St. George in Lake Erie and put into wooden boxes. Formerly, they emptied the grapes into barrels and transported them by boat to their winery at Sandusky, Ohio.

The barrels were awkward and hard to handle and required cleaning after each use. So the company sought a way to eliminate the barrels—a method which would enable them to ship the wooden boxes directly to the Sandusky winery.

They did it with a combination of material handling items. First, they put forks on a farm tractor. The tractor carries palletized boxes of grapes from the vineyard to a flatbed truck for shipment to the winery.

At the winery, a special counterbalanced electric fork truck unloads the grapes. The truck's design enables the weight of the truck to remain on the dock while the forks are inserted in the pallets. The flatbeds are unloaded from the side so the truck's forks are always within easy reach of the pallets.

The people at Meier's were so impressed with the efficiency, economy, and easy operation of the fork truck that they had one of their flatbeds haul it to



FORK TRUCK UNLOADS grapes at Meier's Sandusky winery. Use of special counterbalanced truck (left) enabled Meier's to discontinue shipping grapes in barrels. Photo (top) shows high stacking truck storing cartons of bottles on new mezzanine that nearly doubled Meier's storage capacity. Moto-Truc Company

the warehouse at Silverton after the harvest season. This way they make full use of the truck. During the autumn harvest, the truck unloads grapes at the winery in Sandusky. The rest of the year, the truck works in the company's Silverton warehouse.

Good Handling Continues

The success of this new shipping and receiving system prompted Meier's to improve their other handling. They bought four more trucks—one walkie pallet truck, two rider fork trucks with telescoping masts, and one walkie fork truck with telescoping mast.

The small pallet truck carries wines from the bottling line to a high stacking truck for storage. The two rider trucks handle the general warehousing and load highway trucks as well.

An advantage of the high stacking fork truck is its ability to use space formerly unusable. After buying this high stacking truck, the company built a mezzanine, nearly doubling their storage capacity. One of the rider trucks lifts cartons of bottles to the mezzanine. A walkie on the mezzanine stacks the cartons. The procedure is reversed when bottling begins.

According to vice president, Jack Sonneman: "In addition to reassigning eight men to more productive work, we now have the added space-saving advantage of high stacking." ♦

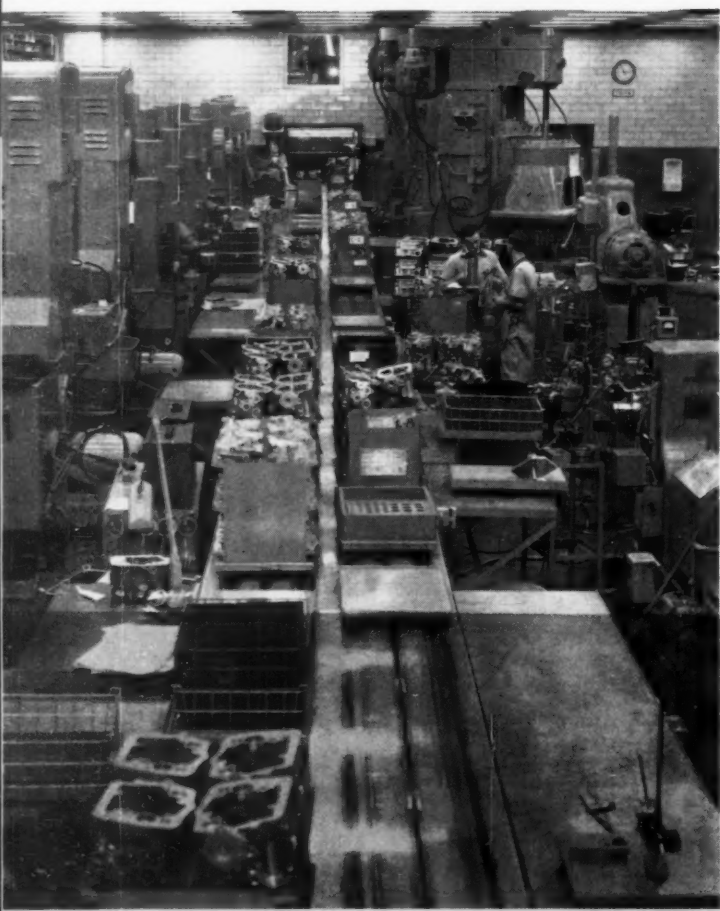
Evaluation of work station

MAKE STORAGE AREAS out of your work stations and prepare to fall flat on your face. You'll trip over the clutter. More significant, you'll trip over costly handling and reduced production.

Many firms tend to store around production machines and assembly stations. It seems natural to let the stuff pile up. But you'll be far better off keeping material moving than letting it accumulate, when it's not in process at the moment.

Next time you walk into a plant (your own or another) look at the amount of movement at the work stations. If you see skids, watch how the worker handles from them. Follow the finished parts. See where and how they go. This little procedure is a start toward evaluating work stations for your own information.

You may find something like this. A plant with 450 machines had 180 stations where the worker walked more than 5 ft. to get material. Every time he left the machine, it was idle, failing to produce dollars for the company. How was this corrected? Merely by bring



UNUSUAL WORK STATION LAYOUT with L-shaped movement at Ingersol Milling Machine Co. Heavy stock goes on conveyor in right foreground, gets pushed to one of the lathes. Worker picks off stock, using lathe's extensible conveyor. After machining, finished part goes on gravity conveyor bounding left side of the area. Part winds up at inspection, in far left corner of the section. In another example of good work station layout (below), Woodward Governor Co. uses dorkhigh drag link conveyor down center of work stations. Notice how close machines are to each other, saving steps, keeping worker on the job.



layout

the material to the worker in containers and placing them closer to the machine at work level height.

Someplace along the line this plant lost sight of a basic idea: Keep the production worker producing because he makes money for the plant. You can afford some indirect labor, but only to get more production per man hour.

A Work Station Is

. . . . a place where a worker works. He may tend a machine, assemble a product, ship a package, or unload a rail car. But it's more. He may tend several machines. Or several workers may tend one machine. These may all properly be considered work stations for material handling purposes.

Skimpy planning has botched many a work station. An engineer decides the main equipment. Then he arranges templates on a floor plan until he has the layout the way he thinks it ought to be. Sure, he put in space for machine overhang, for the operator, a bench, and tool rack.



But did he plan for a conveyor station, place for a skid, bin arrangement, and other vital aids? It's not at all unusual for the machine to take up less than 20 percent of a work station. Be certain to consider these points when planning for space:

- Machine overhang and moving parts.
- Accessibility to parts of the machine needing adjustment during operation.
- Projection of material.
- Tools, gages, racks, benches, floor conveyors.
- Moving large work on and off by truck.
- Moving material by skid, pallet, box.
- Repair and maintenance of equipment.

To Improve Station Layout

Analyze your material handling; find opportunities to reduce handling costs at stations. Consider the size and kind of material, frequency, and distance of movement. Some other ideas:

- Use gravity as much as you can.
- Consider special containers that preposition material, make it more accessible.
- Relocate service activities, if need be.
- Move stations closer to storage or tool rooms.

Some Ideas Behind Good Layout

You're trying to lay out as straight and short a distance as possible for processing, paperwork, and worker travel. How you do this probably will be a compromise at best. But you can approach an ideal if you apply these:

- Make principal work flow follow straight lines.
- Avoid backtracking and cross travel.
- Place files, cabinets, records, and material near those who use them.
- Get rid of surplus cabinets, benches, tables to provide space for more important purposes.
- Assign best lighted and ventilated space for work needing closest attention and concentration.
- Group together workers using the same equipment.

Our purpose in work station layout: to reduce inventory dollars by speeding all handling in the manufacturing cycle. Be a questioner. Look at the overall picture. Then consider these:

MATERIAL MOVEMENT—Review from source to consumer. For example, if you get tons of material in bulk, you might do better to get it in lots that can go right to the work stations. You may increase efficiency by changing from cartons to standard or small containers.

POINTS OF ACCUMULATION—Set up a controlled storage area and move material storage out of processing. Make every square foot of production area pay off in production, not storage.

BETTER CONTROL—Schedule material movement as you would any shop operation.

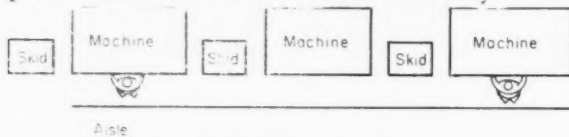
PERIMETER FEEDING—Stocking up at the perimeter of machines or assembly stations may make a lot of sense. Set up work centers so material flows from the outside into the work area. Consider also the advantages of leaving an aisle around the perimeter of your building instead of butting racks against the wall. This way you can feed the outer side of the racks and pick from the inner.

RELIABILITY—Plan to get 75 percent utilization of your handling system. This should easily cover processing equipment which, in most plants, works at only

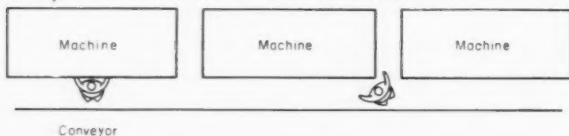
60 to 70 percent efficiency. Take care of the other 25 percent in some unusual way.

Some Machine Arrangements

Goal: to arrange machines so workers move as little as possible. This will vary greatly according to your product and methods. But here are some ways.



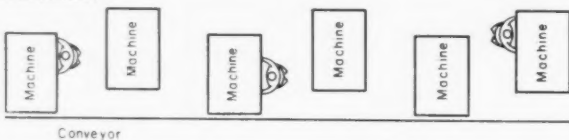
Straight line along an aisle. Chief disadvantages: spread out, worker has long distances to move, especially if he runs more than one machine.



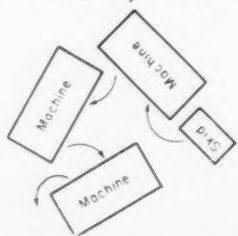
Straight line and conveyor: Machines can be spaced closer. But worker has to turn around to use the conveyor, wastes time.



Diagonal line and conveyor: Much handier. May still be troublesome when worker runs more than one machine.



Perpendicular to conveyor. Worker can run two machines, still remain handy to the conveyor.



Grouping. Worker can run cluster of machines with little movement. It's vital to work out carefully the means of receiving material and sending away finished parts so that grouping can fulfill its advantages.

It's generally smart to place machinery and equipment close together for ease of operation and maintenance (chip cleanout, getting to hookups).

In some plants you find too many aisles and too wide aisles. An average ratio figured by some is 1.2 sq. ft. of aisle space to every 1 sq. ft. of manufacturing or storage area. This is too much for most plants.

Chief villains are cabinets, cupboards, benches, extra tools, and fixtures. They steal more space than anything else. A documented case tells of saving more

than 3,000 sq. ft. in one plant alone. They reduced work station area by dumping unnecessary benches, cupboards, and racks for little-used tools and fixtures.

Keep the machine operator at his machine by supplying him with his initial tooling setup and a constant supply of materials. One way is with a central stock control area.

Some items travel miles during manufacture. Correct this by study and planning for department rearrangement. In one plant, 68 percent of all movement was between burr bench, cleaning, tumbling, heat treat, and plating—widely-separated departments. In planning a new plant, these will be the hub of manufacturing.

Laying Out the Line

Workplaces don't float in space. They're steps in the flow of material movement. Therefore, time everything with the bottleneck stations in mind. You'll need surge points here and there.

For example, one machine may turn out 50 pieces an hour and the next, working on the same pieces, only 20 an hour. Here's an accumulation point. Soak up the surplus of the faster machine with flow racks, bins, pallet racks, storage conveyors, or add another production machine.

A fabrication line, composed of many work stations, often is thought of as a straight line. It also may be U-shaped. Advantage: you can use the same handling equipment to feed raw material at the start and to remove finished parts from the end—because both ends are close together. This arrangement also enables you to return empty fixtures and containers quickly and to store in the center.

Another layout variation is the circular: machine stations end-to-end to form a circle or oval. This eliminates worry over returning containers and fixtures. There's also an S-shaped layout that's a variation of the circular.

These layouts generally are for fixed machines, that is, machines that must be bolted down and leveled, can't afford a twist in the bed. On the other hand, there's a strong case for portable machines, such as presses, some milling machines, and the like. These can be moved by truck, crane, or casters to form new layouts as required by the process. This has a great deal to recommend it if the machines can take it.

The main point, however, is to hold down workers' movement. One plant would position work 4 to 5 ft. from a machine. This meant costly steps. The company discovered that it lost nearly 30 percent of the productivity of this machine every day. Sounds dreadfully simple, but all the firm had to do was move the pallets closer to the machine. Have you a difficulty that can be solved as easily as this?

Another Work Station—Assembly

Much of the above applies to assembly stations as well as to machine stations. For example, work positioning is vital to both. So long as you have hold of an item, think about the next operation. See if you can put it where the next worker can grab it easily. Cut down hunting, walking around.

However, assembly calls for more motion study than

WORK STATIONS CAN BE VERSATILE



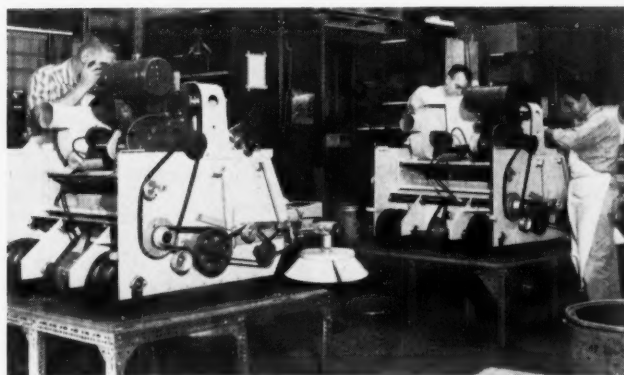
EXTREME FLEXIBILITY is the keynote at the Clarke Floor Machine Co. This floor polisher assembly line is a good example. They bring in motors and main frames from the rear. Subassemblies, completed in bays at the left, are wheeled to the line on hand trucks.



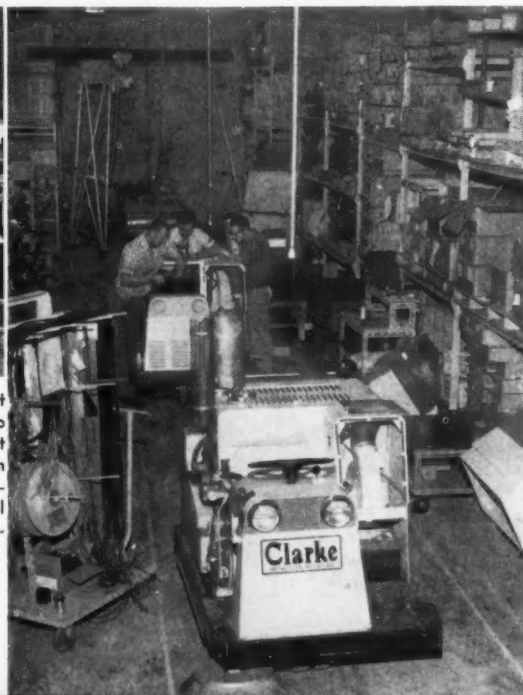
SUBASSEMBLY BAY holds entire inventory of parts for a specific model of vacuum cleaner. Active items go on lower levels and reserve stock, on top.



SAME BAY as at left now holds portable work bench. All parts for subassembly are within arm's reach of workers. Utilities plug in from above. Complete subassemblies go to final assembly on carts.

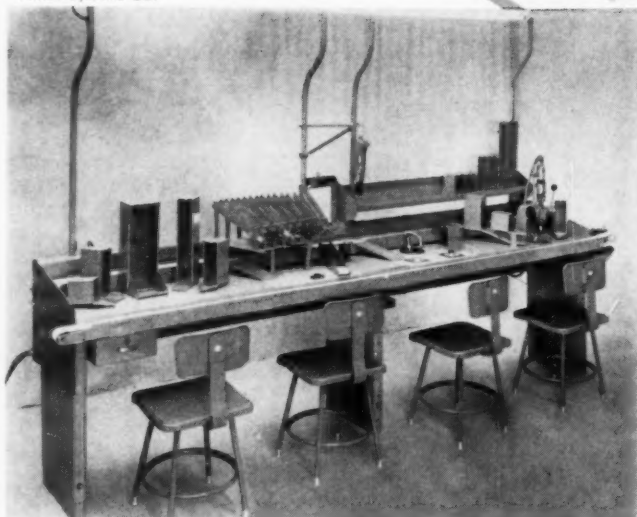


ASSEMBLY LINES show convenience of the system. They assemble light duty sweepers (above) in lots of five, on benches which raise work to useful height. Then they move benches aside, form an aisle for convenient restocking. Items are stored directly behind workers at each station. On the heavy duty sweeper assembly line (right) they store the entire inventory of parts. Assembly starts at rear where subassemblies converge. Final product appears in foreground. Notice hand truck (left) holding assortment of parts handy to the assembler.

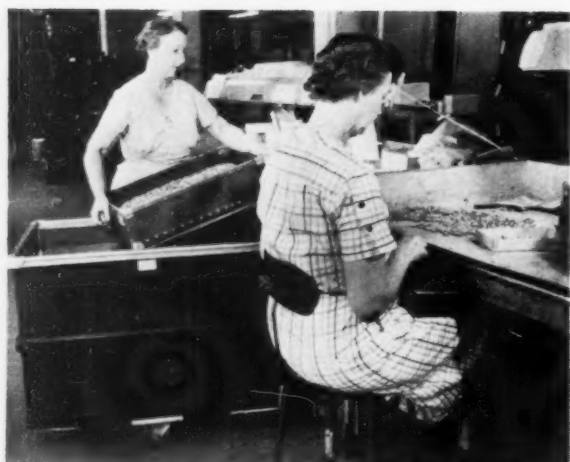


BUILD WITH STANDARD ASSEMBLY STATIONS

Alden Systems Co.

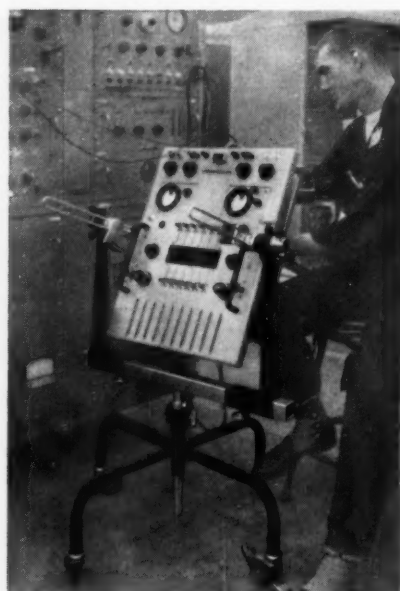


TWO STANDARD BENCHES provide work stations for four assemblers (lower left). They bolt assembly devices to removable panels, easily change them in seconds as the jobs change. Notice the transfer conveyor along the front of the benches; also, the solder pot sunk into the surface of the third panel from the left—designed to keep worker reaching to a minimum. Long view shows how a group of these benches can fit into a sizeable work area. Everyone sits facing the same direction. This cuts cross chatter, takes fewer supervisors.



National Vulcanized Fibre Co.

MANY CLEVER DEVICES make delivery to work stations easier. Example: this hand truck with floating bottom. It keeps contents at waist level, moving up or down depending on weight of material. Torsion springs and pantagraph arrangement of steel guide arms do the job. Trucks hold up to 450 lb.



YOU CAN GET all sorts of work station holders. This one, fully adjustable and portable, holds electronic chassis up to 30 inches square, 200 lb. Two casters lock to prevent rolling. This holder also comes in a bench model.

Flotron Industries

the machine station. Motion study probably will not be a main concern of yours, beyond the knowledge that a worker easily reaches about 27 inches; so it's wise to keep his work within a 27-inch semicircle. Detailed motion study usually is up to the methods man.

Still, to see that material is in the right place for the worker, you should have some idea of motion economy. Consider these ideas for the assembler:

- Both hands begin and end movement at the same time. Keep both hands from being idle at the same time. Try to keep motions opposite, symmetrical, simultaneous, and simple.
- Study hesitation; eliminate if possible.
- Keep material and equipment as nearly as possible within the normal grasp area. Use continuous, curved motions. Try for automatic rhythm.
- Slide rather than carry small items.
- Place equipment and material at the work stations before work begins, to reduce searching, finding, and selecting.
- Have a definite and fixed place for all tools and materials to make reaching automatic.

Decide early whether to bring the assembly material to the operator or to take the operator to the material. Sometimes it's better to have relatively cheap labor set up a station and move the operator there. He works while the cheaper labor sets up the next station.

On the other hand, with a line of assembly operations, connect them with small conveyors, monorails, carriers on light casters frames, other ways. Here you keep work flowing through the station and the worker stays put.

One suggestion in setting up assembly station lines: Leave enough space for two or three extra work stations to take care of the unusual. This might be an expansion, new product, or greater productivity of the present product.

Where to Start With Assembly

Several companies supply complete components for assembly work stations. One suggests you subdivide assembly steps to as low a degree as possible: one person to do one operation.

Try to keep hand motions right in front of the worker. Object is to feed material to point of use. Most logi-

cal feeding is with gravity feed bins and containers arranged, usually, in a semicircle in easy reach of the worker. Another good idea is to drop the completed assembly through a hole in the bench. A chute then carries the part to the next station or to a conveyor.

Some general ideas: place tools and material in fixed places. Don't make workers have to think where material is; have them find it by habit. Dispose of completed parts in fixed places.

One company supplies a standard bench for work station layout. For the bench, you can get standard power items: electricity, gas, air, and others. Into each bench you can fit portable panels (usually two to a 5-foot bench). On each panel you can bolt any arrangement of tools, machines, and containers—but bolted down so the workers cannot rearrange. Beauty of these panels is their flexibility. Arrange them in any order to take advantage of the best system layout.

Next consideration: work transfer between stations. Object: pass material to subsequent stations without storage. The company provides three standard transfer categories.

1—Small conveyors plus U-troughs, chutes, and other easily-mounted devices.

2—Parts containers themselves. Can be a drawer right from the stock room. Might be a special box serving as a feed hopper.

3—Carts for bringing larger parts to the line, filled in the stock room. These carts also can move parts from station to station.

Final concern of the company is worker comfort, a boost to efficiency. This includes posture seats, proper lighting, and restful color backgrounds.

Sometimes it pays to mechanize individual work stations. This company provides small machines that fit on the panels, such as presses, molding machines, terminal staking machines, drills, and such. You can feed these with various devices: vibrating feeders, drum feeders, blade feeders, and so on. And you can link the stations by conveyors, mechanical hands, positioners, and parts orienters.

The difficulty is when to go into this type of thing. You'd probably use it if you wanted to turn out 10,000 of something. But if you needed 250,000 you might have to go into large machinery and greater floor space. This is a decision you must work out. ♦

EIGHT AIDS TO WORK STATION LAYOUT



Robert C. Brady

Consultant Robert C. Brady, Facilities Planning Service, says this about work station layout:

"Movement's no problem; it's the accumulation. Sometimes it pays to haul material extra distance just to keep a clear work place area. Too often there's a tendency to store around production machines. Plants make a warehouse out of the station. That's no good."

He lists these planning aids for station layout:

- 1—Flow charts with a diagram. Give you step-by-step procedure and flow pattern.
- 2—Questionnaire check list. To stimulate thinking.

3—Travel charts. Get the number of movements between stations.

4—Ratio delay studies. Like work sampling studies used by quality control. Help you observe handling time, equipment usage, and so on, at random times. Give reliable information about time spent doing the job.

5—Elemental standard times. Help you predict what equipment will do on the job.

6—Motion economy and work simplification.

7—Standard charts, engineering tables, and other literature to fit specific needs.

8—Your own forms for collecting data and facts to analyze your work stations.

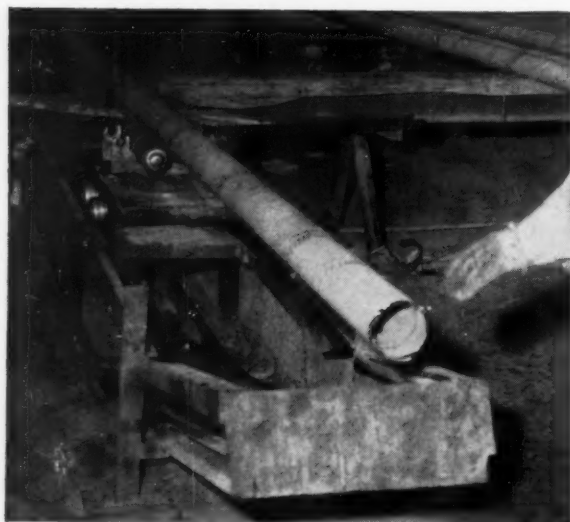
Storing at random in a large yard



PIPE LENGTHS roll onto the yard stack when the sideloader tilts the forks. Workers place tracks of 2 x 4s to enable the pipe to roll.



SIDELoader carries a load of pipe from the receiving shed. Crane magnet lifts pipe from railcar and balances it on sideloader's forks for a trip to yard storage.



SMALL DOLLY on a track holds pipe length while it's conveyed to the finishing table. At end of track, the dolly transfers to lower level, rolls back to the wrapping machine to repeat handling cycle.

THEY STORE up to 4 million ft. of pipe in their yard and never mix a piece. Hill Hubbell Co., Youngstown, Ohio, uses tags to tell exactly where every order of pipe is.

The company coats and wraps steel pipe for corrosion protection. The pipe, used mainly for natural gas transmission, oil, and water lines, comes from steel mills. Hill Hubbell processes it, ships it on to the customers.

Hill Hubbell can wrap about 40,000 ft. a day. Sizes run from 3/4-inch to 36 inches in diameter; lengths from 20 to 50 ft. The yard is 20 acres, most of which provides storage area, except for a 200 x 300 ft. processing building. Road space is 25 ft. between storage stacks in the yard.

Yard storage is random; that is, they store wherever there is room. But control is exact with load position spotted by tags on a board in the office. Similar tags go on the shipments. Orders placed side by side are kept separate by strips of lumber.

Each tag carries the Hill Hubbell specifications, an order number, the number of pieces, size of pipe, footage, car number it came in, mill it came from, and the customer who will receive it. Tags are color coded: red for pipe to be held for future release, yellow for pipe to be wrapped soon, and white for immediate processing.

To Handle the Pipe

Hill Hubbell has two 10-ton bridge cranes with interchangeable magnets or slings. There are two 10-ton Travaloaders, which lift from the side, and two lift trucks. One lift truck has a drum attachment; the other has forks. Ninety percent of the pipe comes in by railcar, the rest by truck. Processed pipe is shipped 80 percent by railcar, the rest by truck.



At receiving, a crane magnet picks up half a dozen pipe lengths from a gondola car, spotted alongside the crane run. The pipe is balanced on a sideloading truck and taken out to yard storage. Occasionally, pipe goes right to the wrapping machines, depending on how soon it's needed.

When a stored load of pipe is to be processed, side-loaders pick it up in the yard, carry it near the machines. An overhead crane lifts the pipe from the side-loaders, places it at the machines.

Handling Through Processing

The pipe first is grit blast cleaned, primed, then coated and wrapped. The completed end, lying on a dolly, moves from the machine on a track. To prepare for the wrapping machine, lengths of pipe are fastened together temporarily with insert plugs so that movement is continuous. After the wrapping, plugs are removed and lengths split apart.

Wrapped pipe then is rolled off the dolly onto a table. From here it's lifted by crane sling into a railcar or truck trailer. Sometimes it's placed on a sideloader for transfer to the outside yard and pickup by truck.

The small lift trucks are for general purpose work. The one with the drum attachment handles steel barrels of coating compound. This is stored in stacks behind the building.

Caring for the Equipment

Plant Superintendent Hollis Batey says the equipment gets hard use. That's why a regular crew is assigned to maintain it properly.

The bridge cranes are tested once a month, greased, oiled, and worn parts replaced. The side-loaders are greased monthly, oil changed every 200 hours. There's no scheduled complete overhaul. The two fork lift trucks get a regular servicing once a month.

Batey characterizes the equipment as maneuverable, dependable, and economical. In particular, he singles out the side-loaders as vital to the operation. ♦

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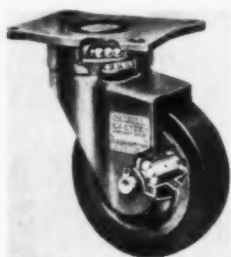
LP-Gas reduces maintenance, too. You can get 2 to 3 times the operating hours between overhauls—2 to 4 times the spark plug life. Oil lasts 5 to 10 times as long. LP-Gas is safe, economical. Conversion is easy from present equipment. Get the full story. Write: LP-Gas Council, 1515 Chicago, Evanston, Ill.



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STACKER CRANE (left) moves up and down aisles, quickly storing incoming material and filling customer orders from rack. It can handle 6,000 pounds and can stack 16 feet high. Four forks support the load (above). Center or end forks can be folded up and the two remaining forks used alone if the size of load warrants.

Stacker crane moves

MANY BUSINESSES depend to a great extent on someone like Copper and Brass Sales, Inc. to keep them supplied with enough metal to maintain constant production.

These businesses often need delivery within 12 to 24 hours. To give it to them, Copper and Brass Sales, Inc. designed its new building from the ground up with the help of material handling specialists—manufacturers, distributors, and consultants.

Copper and Brass Sales, Inc., Cleveland, Ohio, is a metal service center furnishing manufacturers with aluminum, magnesium, stainless steel, copper, and brass. They supply it in rods, bars, tubes, coil and plate ranging from paper thin sheets to 6-inch-thick slabs. Warehouse area is 30,000 sq. ft., exclusive of office space.

Trucks drive right into the building to the shipping dock. They back up to one of two automatic dock levelers for unloading.

A fork lift truck unloads incom-

ing material from the trucks. The fork truck then spots the load directly in front of the bay in which it will be stored. Flat stock, coils, and sheets are stored in one of three racks designed by Copper and Brass Sales and made by a local steel fabricator. The racks handle 36 in. and 48 in. widths. Each rack is 16 ft. high and, depending on the thickness and weight of the stock, has 11, 13, or 15 spaces.

They palletize flat and coil stock on made-to-order heavy-duty pallets using four by four's for runners. Then they can be handled easily with the fork truck or stacker crane.

A 6,000-lb. capacity stacker crane puts flat stock, coils, and sheets into storage. It services three racks—one bay. The crane moves down the aisle and stores the material on a rack with similar metal.

The most-called-for metals are stored in the bottom racks so that the stacker crane can get it out with the least movements.

A master stock control chart,

MATERIAL HANDLING ENGINEERING



VACUUM LIFTER picks up heavy copper slab and positions on saw bed for cutting to customer specs. Vacuum lifting doesn't scratch the metal.

orders fast

mounted permanently inside the stacker crane, tells the operator just where to store material. Also, it tells him exactly where to find material when he's filling an order.

Material going out on order is taken from the rack by the stacker crane and, if necessary, is cut to size. The stacker crane spots the metal to be cut on the floor directly in front of the saw. Some of the material to be cut is six inches thick and weighs well over 1,000 lb.

A 2,600-lb.-capacity vacuum lifter on a wall-mounted jib crane lifts the metal to the bed of the saw. The jib crane has a 20 ft. arm and swings 180°. It is placed directly between the plate saw and a splitter, and serves both.

The outstanding advantage of the vacuum lifter is that it works without hooks or grabs. And it doesn't mar the surface and edges of the metal.

Once the metal is cut or slit, the stacker crane spots it in front of a made-to-order packaging machine. The specifications for the packaging machine were drawn up by the National Association of Aluminum Distributors. But it is used for all metals in the warehouse, not just aluminum.

The rod and bar stock and tubing are stored in another bay, separate from the sheet and coil stock. A 5-ton overhead hoist, using slings and grabs, unloads it from the trucks at the dock. ♦

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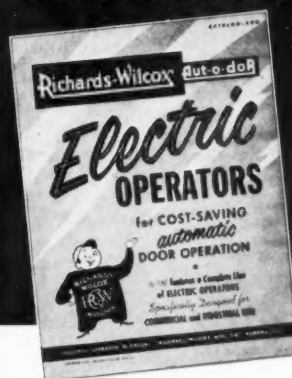
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BULLETINS CATALOGS FILMS

Flat-Top Pole Buildings

Flat-top pole buildings provide 21 ft. x 21 ft. interior bays, cost little. Bulletin W-390 explains why these standard structures are economical for warehousing and storage, gives specifications. Drawings reveal construction details.

The Koppers Co., Inc.

Circle 401 on Reader Service Card

Plastic Tote Boxes

Catalog describes line of plastic assembly containers and mounting accessories. Includes specifications, dimension drawings of boxes suitable for production line use and storage of small parts.

G. B. Lewis Co.

Circle 402 on Reader Service Card

Reciprocating-Plate Feeders

Bulletin 6094 tells you what reciprocating-plate feeders are, why they are economical for feeding bulk material from bins or hoppers. Gives specifications, explains how to select feeder you need.

Chain Belt Co.

Circle 403 on Reader Service Card

Casters & Wheels

Polyurethane wheels are featured item in catalog CW-61, which covers maker's line of industrial, pneumatic, and precision casters and wheels. Includes caster accessories, casters and wheels meeting military specifications.

Saginaw Products Corp.

Circle 404 on Reader Service Card

Range Drive Speed Control

How electric current frequency control governs speed of all a.c. motors

in a range drive explained in Bulletin F-2028 on U.S. Varidyne. System needs no tachometers, feed-back, electronic devices. Gives stepless speed change. There's no speed drift. Applicable to material handling equipment.

U.S. Electrical Motors, Inc.

Circle 405 on Reader Service Card

Prevents Electrocuting

Insulated conductor bars for crane and monorail systems prevent hazard. Collectors used with bar give twice normal contact. Bulletin EL 1510 describes bars, insulation, provision for ends, curves, switches, etc.

Control Engineering Co.

Circle 406 on Reader Service Card

Push-Button Tape Dispenser

Push a button, and out of the electric tape dispenser comes just the length of gummed tape you want, moistened with water heated to exactly 130°. Folder on this new machine gives case histories telling how it speeds packaging for (1) an auto parts wholesaler, (2) an ice cream plant with a packaging line, (3) a contract packager, (4) a retailer.

Better Packages, Inc.

Circle 407 on Reader Service Card

Two Part Rack System

With two basic parts, upright frames and stringers, you can set up racks for nearly every heavy-duty need. Eight-page Bulletin 107 explains how parts snap together without bolting, gives dimensions and capacity data for frames and stringers. Also describes skid rails, drum supports, other accessories.

Bernard Gloekler North East Co.

Circle 408 on Reader Service Card

Manual on Maintenance Of Electric Fork Lift Trucks

"Servicing the Clarklift Electric" is a 94-p. manual illustrated with 189 photos and 41 color schematic electric circuits. It supplements a slide film on electric truck maintenance. The first part covers basic electrical principles, testing instruments, inspection, testing, and repair of components of Clarklift trucks. Part II gives information on operation, testing, and repair of the hydraulically-controlled carbon-pile variable resistor that controls the electric motor speed. The appendix provides complete specifications, fold-out wiring diagrams, and adjustment procedures for Clarklift electric trucks. You can get the manual from Clark dealers, or from Manual and Statistics Dept., Industrial Truck Div., Clark Equipment Co., Battle Creek, Mich. Price: \$2.00.

Staplers and Stitchers

All kinds of staplers and wire stitchers, representative of maker's line, shown in 12-p. folder. Ranges from common desk stapler to multiple-head power stitchers. Condensed information on staple sizes, capacities, speeds, power requirements, etc.

Bostitch

Circle 409 on Reader Service Card

Electric Chain Hoist Specs

Hoist Manufacturers' Association offers "HMA-400 Standard Specifications"

Continued on page 84



Circle 401



Circle 402



Circle 403



Circle 404



Circle 405

READER SERVICE CARD

Material Handling Engineering

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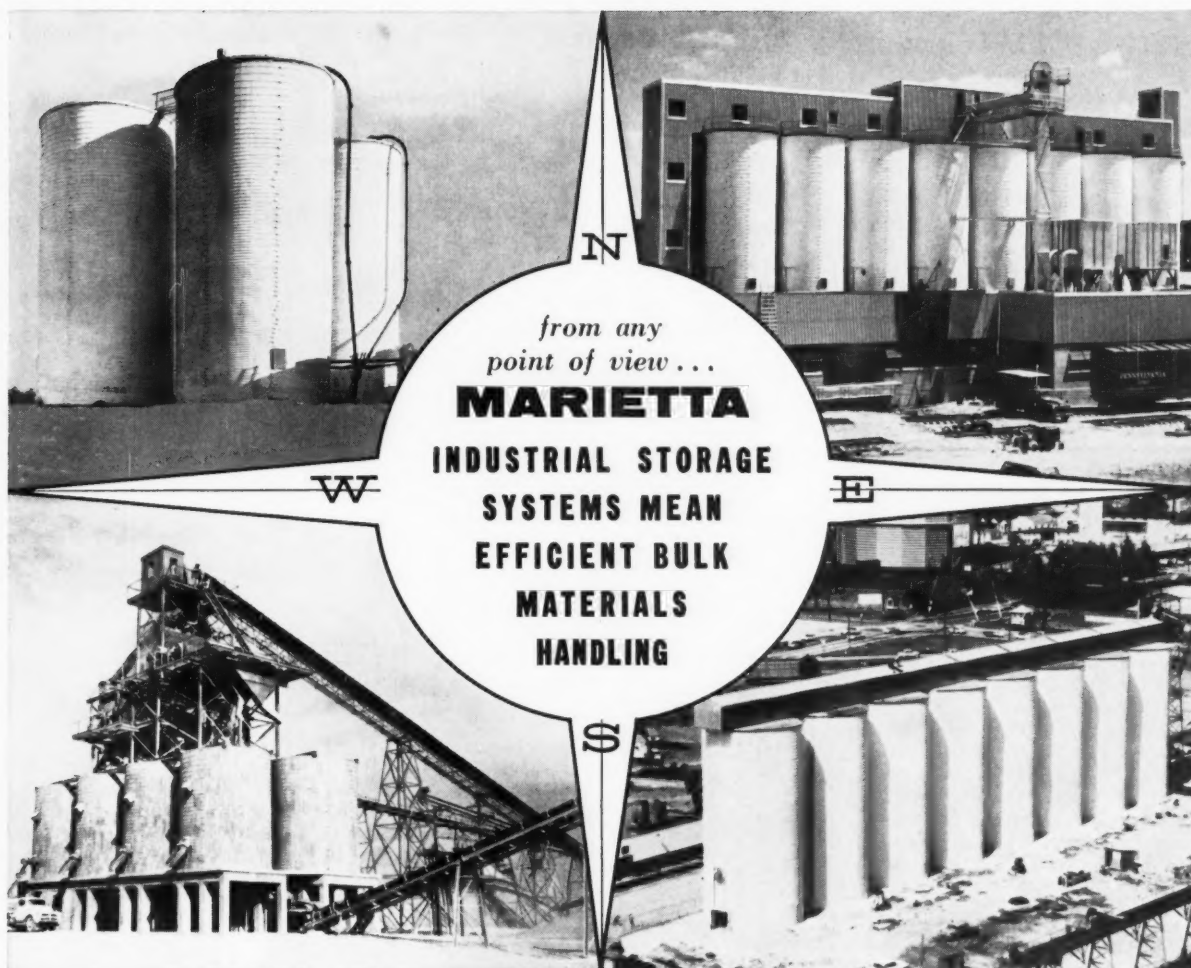
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READER SERVICE CARD

Material Handling Engineering

FOR YOUR CONVENIENCE...

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Upper Left — H. F. Postma Gravel Co., Grandville, Michigan
 Lower Left — Standard Industries, Tulsa, Oklahoma
 Upper Right — American Radiator & Standard Sanitary Corp., Plainfield Plant, Wauregan, Connecticut
 Lower Right — Terminal Storage, Tampa, Florida

IF YOU store and handle bulk materials, there's a Marietta Industrial Silo Storage System . . . designed to your precise needs . . . to help you do it better with important savings in time, labor and space. For example, Marietta designs each installation to meet specific job requirements and plant conditions only after careful study of plant layout and material flow pattern. In addition to providing safer storage for all types of bulk materials, Marietta Industrial Systems play a dynamic part in loading, conveying and discharging materials, too, because they are engineered to take full advantage of existing materials handling equipment. Or, where required, Marietta recommends the right conveying equipment and designs the storage system to function as an integral part of it. Concrete stave construction makes Marietta Industrial Silos strong and durable . . . permitting

conveyor equipment to be mounted on silo top or sides in complete safety. And, flexible Marietta design lets you plan for future expansion because it is easy and inexpensive to add to your installation at any time.

And, don't overlook Marietta's other important benefits . . . elimination of ground storage losses, costly bagging operations and inefficient manual handling, as well as the safe, weather-proof storage of any bulk material. But, get the complete story for yourself by writing for our Industrial Storage System Catalog.

Marietta CONCRETE DIVISION
AM AMERICAN-MARIETTA COMPANY
 Marietta, Ohio
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Precast Concrete Products for Industry, Farm and Home
 Circle 78 on Reader Service Card

BULLETINS CATALOGS FILMS

tions for Electric Chain Hoists." It is companion to specs on Electric Wire Rope, Hand Chain, and Manually Lever Operated Hoists.

Hoist Manufacturers' Association

Circle 410 on Reader Service Card

Straddle Carriers

Booklet of pictures shows versatility of straddle carriers. They handle boats, missiles, piggy-back trailers, tanks, unit load containers, pipe, concrete, steel, etc. Capacities range from 12 tons to 40 tons.

Travelift Div., Drott Mfg. Corp.

Circle 411 on Reader Service Card

Battery Care Manual

Reference book and training text for users of storage batteries. Sections on principles of battery construc-

tion and operation, how to maintain batteries, charging, diagnosing troubles, and repairing. Completely illustrated with photos, diagrams, graphs. "General Service Manual" is pocket-size, 48 pages, has no advertising.

C. & D. Batteries, Inc.

Circle 412 on Reader Service Card

Blister Packaging Guide

Information to help you choose and use blister packs. "Blister Packaging Facts" (24 p.) compares them with skin packs, slide and contour packs. Describes 5 plastics which can be used. Discusses card stock, adhesives, printing methods, assembly and heat sealing, and gives checklist for package planning.

Jackmeyer Corp.

Circle 413 on Reader Service Card

Easy-to-Erect Racks

Portfolio brings folder describing construction details of storage racks, 1-p. bulletin showing installations, and how-to-erect instruction sheet. You put racks up without tools. Adaptations for pallets and skids, barrels, reels, pipe or bars, etc., Drive-through type available.

Frazier Industrial Co.

Circle 414 on Reader Service Card

Aptitude Testing

Bulletin explains MHEDA aptitude tests for service managers. Tests cover material handling requirements.

Material Handling Equipment Distributors Assn.

Circle 415 on Reader Service Card

Automatic Bag Palletizer

New automatic bag palletizer handles bags fast, but gently. Construction, operation described in 10-p. bulletin. Includes diagram of floor space requirements. Machine tested with all kinds of bagged products, including cement.

Food Machinery & Chemical Corp.

Circle 416 on Reader Service Card

Lift Trucks, Tractor Shovels

Sampling from the Yale line in Bulletin 602B covers gasoline, LPG, Diesel, and electric fork lift trucks, platform trucks, tractors, tractor shovels, hand trucks. All units illustrated in color, capacity range of each model given. This is a birdseye view

Continued on page 86

from the ground UP  builds it better...

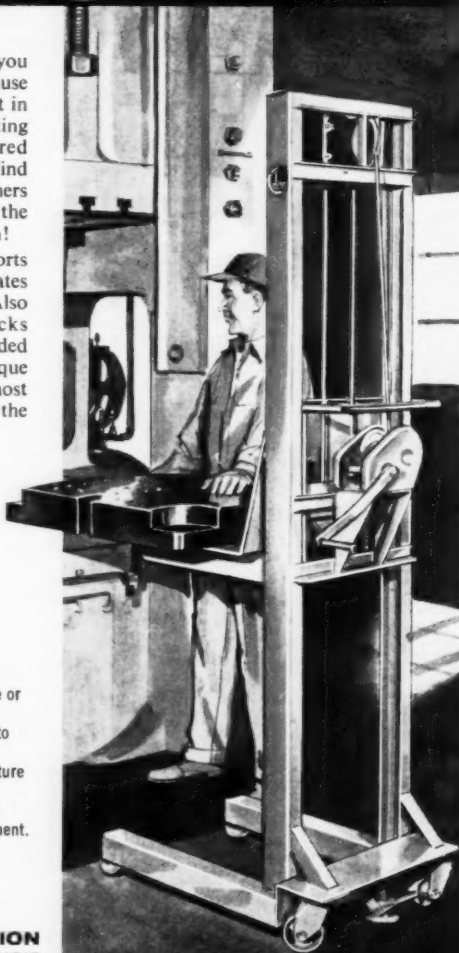
Colson Lifting Equipment helps you get more work done for less! Because every single part of every product in the complete Colson line of lifting equipment is carefully engineered with your requirements in mind. Find out for yourself, as so many others have, why it pays, when you buy the best lifting equipment... Colson!

Colson C/U Lifter lifts, transports and feeds dies, forms, shapes, plates or bulk, up to 1000 pounds. Also loads and unloads trucks, stacks materials up to 6 ft. high. All welded heavy duty steel construction, unique design and low cost make it the most versatile, economical machine in the shop. Send for free catalog.



NEW! COLSON DRUM DUMPER

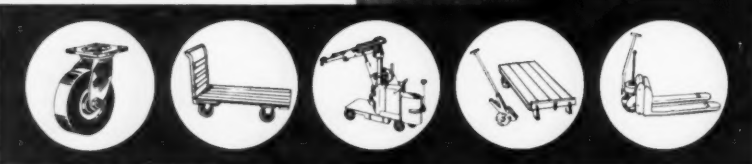
Available in portable or stationary models, capacities from 500 to 1,000 pounds. Write today for free literature describing Colson's newest line of lifting and handling equipment.



THE COLSON CORPORATION

7 S. Dearborn St. • CHICAGO, ILLINOIS

Plants: Jonesboro, Arkansas; Elyria, Ohio; Somerville, Massachusetts; Toronto, Can.



Circle 29 on the Reader Service Card

CM METEOR, HEAVY DUTY, LOW HEADROOM ELECTRIC HOISTS
fast...rugged...dependable

METEOR wire rope electric hoists are designed for extra heavy duty service with minimum maintenance. Push button controlled and available in a variety of suspensions—lug, hook, plain trolley, geared trolley and motor driven trolley. Many hard working "CM" features provide maximum efficiency, durability, economy and safety.

CM HOISTS TROLLEYS CRANES

...leaders in quality, dependability and safety for more than 75 years

CM CYCLONE HAND CHAIN HOISTS

low cost...high speed...dependable
CYCLONE is a high speed, spur geared hoist. Made of steel and aluminum alloy, its light weight makes it so easy to handle, yet it's constructed for rugged, heavy duty performance. CM-Alloy Steel Welded Chain provides long wear and complete flexibility. Low headroom, 96% efficiency, sealed in lifetime lubrication, and many other proven CM features deliver dependable, efficient and safe service at minimum cost.

CAPACITIES: From 1/4 to 10 tons.
1 ton model weighs only 36 pounds.

Bulletin No. 145

CM PULLER

gives a man giant strength

Has a thousand-and-one uses in lifting, pulling, dragging or stretching. 3/4 ton capacity handles 1500 pounds with only 58 pounds effort. Indispensable for maintenance, rigging and construction. Positive braking holds load automatically with non-slip action. Light but rugged construction from heat treated alloys of steel and aluminum. Famous CM-Alloy steel welded link chain provides complete flexibility and super-strength with non-kinking, self-cleaning advantages.

CAPACITIES: From 3/4 to 6 tons.
3/4 ton weighs only 14 pounds.

Bulletin No. 146

FOR OVER 75 YEARS, Chisholm-Moore has offered buyers the newest and most efficient designs, the most rugged construction, and the greatest number of valuable operating and safety features. CM products operate with a very minimum of maintenance, giving years of satisfactory service.

CM LODESTAR ELECTRIC HOISTS

small size...big capacity

Here is the first truly heavy duty version of the small electric hoist. Equipped with self-adjusting magnetic brake plus ultra-modern regenerative electrical braking. CM-Alloy flexible link chain and jam-proof chain guide assure trouble-free lifting even at extreme angles. With lowest headroom, push button control, light weight and attractive price, CM Lodestar is built to serve you for its normal life without costly maintenance or interruptions in work schedules.

CM CYCLONE TROLLEY HOIST
for low headroom requirements

Heavy duty Cyclone hand hoist built integral with a rugged plain or geared trolley for installation where extremely low headroom and maximum lift are required. Trolley is adjustable for various size beams.

CAPACITIES: From 1/2 to 6 tons.

Bulletin No. 145

CM CRANES

CM supplies a wide variety of hand operated overhead traveling cranes, jib cranes and portable cranes for use with hand and electric hoists.

CAPACITIES: From 1/2 to 10 tons.

Bulletin Nos. 152, 153, and 154

CM TROLLEYS

Choose from the complete CM line of dependable trolleys. Available in three bearing types: Timken Tapered Roller Bearing, roller bearing, and ball bearing. Plain or geared.

CAPACITIES: From 1/4 to 12 tons.
Bulletin Nos. 139, 140, and 141



CAPACITIES:

From 1/2 to 5 tons.
Single or two speed control. Only 110 volts at push button control.

Bulletin No. 142



CAPACITIES:

From 1/8 to 2 tons. Single and 3 phase. 1/4 ton model weighs only 51 pounds.

Bulletin No. 158



WRITE for descriptive bulletins and name of your local distributor.

Stocking distributors in all principal cities.



CHISHOLM-MOORE HOIST DIVISION

Columbus McKinnon Corporation

FREMONT AVE., TONAWANDA, N.Y.

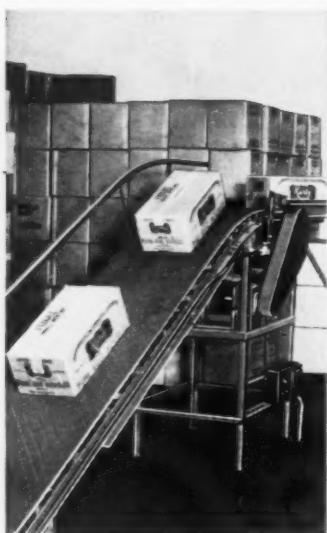
NEW YORK (Mountainside, N.J.) • CHICAGO

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In Canada: COLUMBUS MCKINNON LIMITED, ST. CATHARINES, ONTARIO

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"HI-CLIMBER"®



*For a Steady,
Up-Hill Flow
of Packaged
Goods...*

Heavy-duty belting for incline conveyors handling cartons, boxes, baskets, bags, cans, etc. Special diamond-impression surface will keep packages in place on grades up to 40°—no slipping, sliding or jamming to halt continuous transfer. Widths up to 44".

"SKY-KLEET"®

*For Efficient
Movement of
Small Items*

Specially designed rubber cleats available on Goodall Conveyor Belting used for handling food products, small packages and parts, stampings, minerals, chemicals, etc., on fixed or portable conveyors. Cleats are molded into the belt—never come loose. Spaced 12" apart unless otherwise specified.



"If it's GOODALL, it MUST be Good!"

Contact Our Nearest Branch for Details and Prices

Manufacturers of Mechanical
Rubber Products—Since 1870



Standard of Quality HOSE • BELTING • FOOTWEAR
CLOTHING • EXPANSION JOINTS • PACKINGS • LINERS, ETC.

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GENERAL OFFICES, MILLS and EXPORT DIVISION, TRENTON, N.J.
Branches and Distributors Throughout the United States and in Canada

Circle 145 on Reader Service Card

BULLETINS CATALOGS FILMS

of what maker offers, from 50-ton capacity metal handling ram truck to hand roller jack for semi-live skid.
Yale & Towne Mfg. Co.

Circle 417 on Reader Service Card

Industrial Truck Costs

To help you make your own study of your industrial truck costs, Bulletin 6527 provides forms and data. Graphs aid in estimating all cost factors. Provides for specific comparison of propane-powered trucks with electric-powered trucks.

Exide Industrial Div.,
Electric Storage Battery Co.

Circle 418 on Reader Service Card

Magnet Actuated Air Switch

Miniature air switch operated by small permanent magnet, described in Bulletin S-1. For use in totally pneumatic circuits; requires no electricity, has no striking parts. Can be used on control valves, automatic packaging equipment, conveying equipment, as limit switch, pressure switch, level switch, etc.

Associated Control Equipment, Inc.

Circle 419 on Reader Service Card

Run Lift Truck from Platform

Operator rides up on platform of lift truck, has full control of truck movement in any direction from platform. This speeds stocking and stock-picking from racks and shelves. Bulletin 608 describes use and safety features, gives specifications, and photos of truck and its controls.

Barrett-Cravens Co.

Circle 420 on Reader Service Card

Magnetic Pulleys

Put a magnetic pulley on your belt conveyor, separate tramp iron and smaller ferrous contaminants from your product. Six-page bulletin "Magnetic Pulleys" explains how to do it with permanent magnet pulleys, gives selection guide, tables of capacities and dimensions for all models.

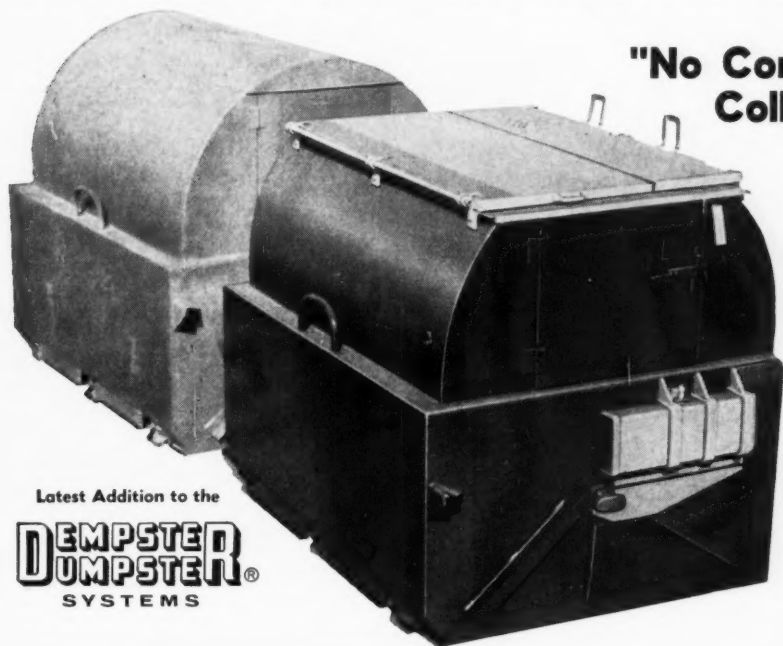
Eriez Mfg. Co.

Circle 421 on Reader Service Card

Continued on page 90

MATERIAL HANDLING ENGINEERING

New SUPER DUMPMASTER Handles Converted DUMPSTER Containers...Beats Long-Haul Problem



Latest Addition to the

DEMPSTER
DUMPMASTER®
SYSTEMS

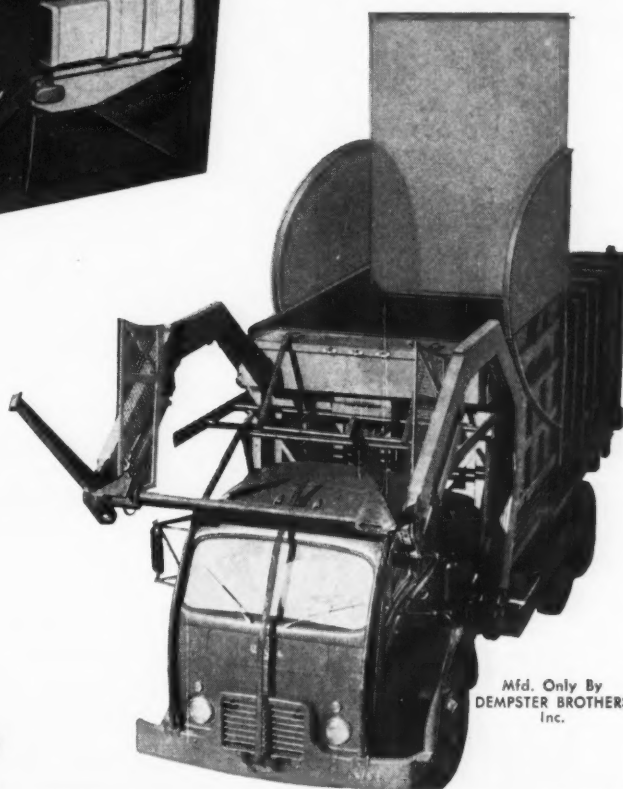
Owners of DEMPSTER-DUMPMASTER Systems who now face long haul problems due to movement of disposal areas may now convert from their present "container haul" system to the new SUPER DUMPMASTER "no-container-haul" system without abandoning their investment in DUMPMASTER Containers.

The SUPER DUMPMASTER makes its rounds to each converted container, mechanically empties the contents into its 30 cu. yd. packer body and compacts the material to a fraction of its former volume with the 85,000 lb. force of its packer plate. Rather than haul each container to the disposal area, the SUPER DUMPMASTER carries the contents of many containers on each trip, cutting collection costs drastically.

Write Today for FREE BROCHURE
DEMPSTER BROTHERS
Inc.
DEPT. MH-6 KNOXVILLE 17, TENN.

"No Container Haul System" Collects Refuse on Spot

If longer trips to disposal areas have raised your operating costs, a small investment in conversion kits protects large investments in DUMPMASTER containers. The Super DUMPMASTER handles converted DUMPMASTER containers up to 12 cu. yd. and all DUMPMASTER containers one thru 12 cu. yd.



Mfd. Only By
DEMPSTER BROTHERS
Inc.



The SUPER DUMPMASTER engages container.

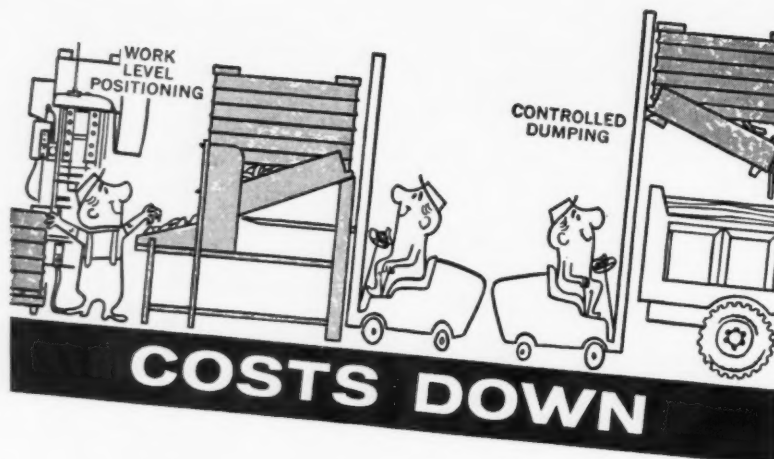
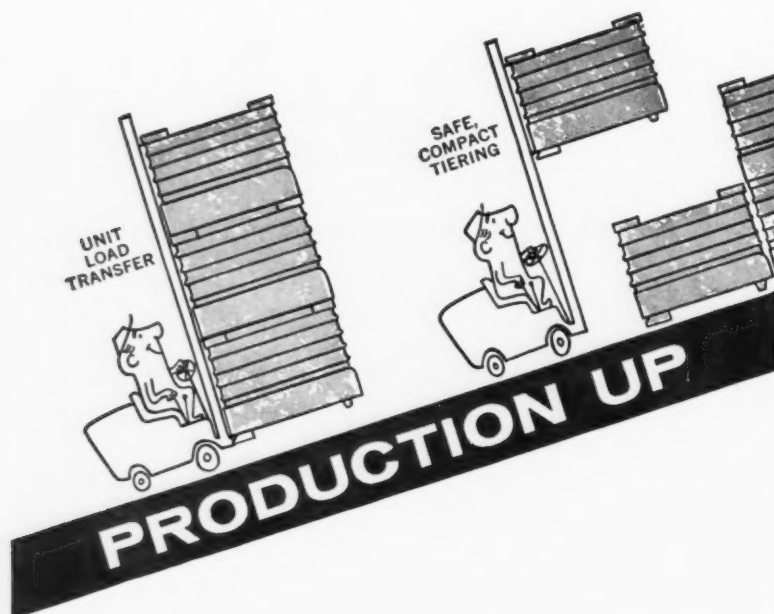


Clearance arms carry it toward hopper opening.



Container is rotated, emptying contents into the compaction body.

Circle 39 on Reader Service Card



with Versatile **WORK-O-MATIC*** HANDLING SYSTEM

Work-O-Matic Drop-Bottom Boxes increase efficiency and solve many troublesome handling problems. The Union Metal Manufacturing Co., Canton 5, Ohio.

*Registered Trade Mark

UNION METAL
Material Handling Equipment

Circle 126 on Reader Service Card

BULLETINS CATALOGS FILMS

Manual Equipment Data

Catalog 261 covers the Grizzly line. Trucks, work benches, stands, dollies, lifts, carts, etc. All items are pictured, and specifications are listed. Company line features all-welded construction. Forty-nine pages of equipment for many uses.

Pucel Enterprises, Inc.

Circle 433 on Reader Service Card

Measure Your Handling Efficiency

"Management Guide to Productivity" will help you expose unwarranted handling expense and prove it to management. The book is based on seven efficiency cost ratios developed by Yale & Towne in cooperation with Professor James R. Bright of the Harvard University School of Business Administration.

Yale Materials Handling Division of the Yale & Towne Manufacturing Co.

Circle 434 on Reader Service Card

Appliance Dollies

Entire frame of the Yeats dolly is made of tough, yet lightweight aluminum alloy. Literature features the Standard Model No. 7 and the Easy Glide Heavy Duty Model 9. Sections also on appliance covers and pads, dolly accessories.

Yeats Appliance Dolly Sales Co.

Circle 435 on Reader Service Card

Vacuum Cleaner

The newly introduced Parker Vac-35 cleans a complete 30" swath. Light, easily maneuverable. Literature gives specifications, points out features. Picks up everything from dust, string, cloth, metal or wood shavings, etc.

Parker Sweeper Co.

Circle 436 on Reader Service Card

Vibratory Feeders

Catalog VB-10-1A is on the Eriez Hi-VI line of electro-permanent magnetic vibratory feeders. Used for precision feeding, spreading, sorting, aerating, cooling, sifting, mixing, etc. List of advantages, features. Application photos.

Eriez Mfg. Co.

Circle 437 on Reader Service Card

Continued on page 90

MATERIAL HANDLING ENGINEERING



NEW...with twice as many lugs for twice the traction... DISOWHEEL®

Your fork-lift trucks will have more sure-footed maneuverability with these NEW Disowheels. The exclusive Disogrin lug design has *twice* as many lugs as other wheels for a surer, stronger grip, and *twice* the traction for stopping.

This makes them excellent for use on inclines, docks and ramps. They're better on slippery surfaces, too, where there is a danger of skidding or slipping, resulting in safety hazards and possible truck and load damage.

THEY LAST LONGER to save you expensive down time due to frequent wheel replacements. Disowheels are made of Disogrin®, which has many

of the properties of rubber, but which greatly outlasts rubber and most other synthetics. Its resiliency resists abrasion which causes the lugs on other tires to "chunk out" in a short time, and it's resistant to oils and chemicals which cause rubber to deteriorate.

Available in standard press-on sizes, Disowheels will fit any manufacturer's electric- or gas-powered materials handling truck.

Get the complete story on the NEW Disowheels. See your distributor or write to Disogrin today for more information.

Send for Disogrin's Seal Catalogue. Disogrin available in "O" rings "U" cups - wipers - etc.

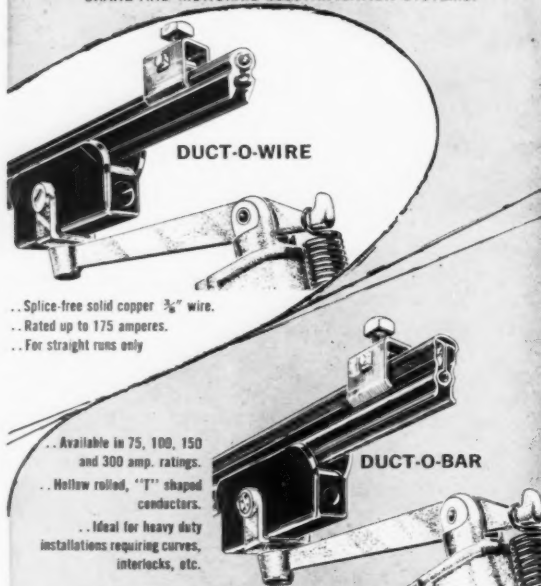
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A DIVISION OF PELLON CORP. • 510 South Fulton Avenue, Mount Vernon, New York • Offices and Distributors in Principal Cities
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Circle 16 on Reader Service Card

ELIMINATE BARE CONDUCTOR DANGER!!

REPLACE WITH SAFE-SURE DUCT-O-BAR AND DUCT-O-WIRE
CRANE AND MONORAIL ELECTRIFICATION SYSTEMS.



.. Splice-free solid copper $\frac{3}{8}$ " wire.
.. Rated up to 175 amperes.
.. For straight runs only

.. Available in 75, 100, 150
and 300 amp. ratings.
.. Hollow rolled, "T" shaped
conductors.

.. Ideal for heavy duty
installations requiring curves,
interlocks, etc.

Both DUCT-O-WIRE and the DUCT-O-BAR systems
have extruded Vinyl Non-burn Plastic Covers, fully
insulated Collector Shoes and require no special tools
or skills to install.

SPECIAL CONSIDERATION TO O.E.M. USERS. WRITE FOR CATALOG AND PRICES.

DUCT-O-WIRE CO.

6520 Bissell Street • Bell, California • Phone LUdlow 5-0233

BULLETINS CATALOGS FILMS

Woven Wire, 3700 B.C. to 1961 A.D.

Marking company's 50th anniversary, 6-p. folder summarizes history of wire cloth from Egyptian queen's crown, 3700 B.C., to latest developments. Shows new wire cloth slings, explains how special alloys make rod-reinforced belting resistant to extreme high temperature.

Cambridge Wire Cloth Co.

Circle 422 on Reader Service Card

Air-Inflated Shelters

Six pages packed with 32 photos tell what you can do with air structures—buildings made by inflating building-size plastic tents with air from a continuous blower. Shows latest developments, explains why these shelters can now be guaranteed for 4 years service. They are used for warehousing, tool rooms, manufacturing operations, as auditoriums seating 1,000 or more.

Cid Air Structures Co.

Circle 423 on Reader Service Card

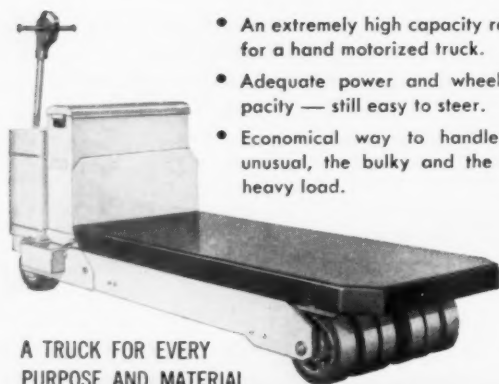
Safety Training Kit

Kit for training fork lift truck operators in safety, includes, 4 cartoon safety posters, 4 lift truck route posters, and operator's safety guide. Guide is 32-p. pocket-size



HydroLectric HEAVY DUTY PLATFORM TRUCK

... handles loads up to 20,000 lbs.



- An extremely high capacity rating for a hand motorized truck.
- Adequate power and wheel capacity — still easy to steer.
- Economical way to handle the unusual, the bulky and the very heavy load.



A TRUCK FOR EVERY
PURPOSE AND MATERIAL



LIFT TRUCKS, INC.

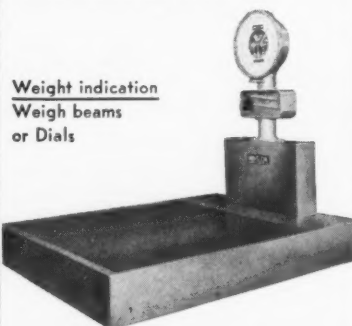
CINCINNATI 14, OHIO



Circle 66 on Reader Service Card

Winslow

**COST SAVING
ACCURATE WEIGHING
INDUSTRIAL OR
WAREHOUSE SCALES**



Weight indication
Weigh beams
or Dials

Modern Self-Contained Design
Installs in Shallow Pit or on Floor
Surface.

Wide Range of Capacities and
Platforms Available to Meet Most
Any Weighing Requirement.

Write or Phone Dept. B115 Today
Phone NORTH 1231

WINSLOW GOVERNMENT STANDARD SCALE WORKS, INC.
25TH & HAYTHORNE TERRE HAUTE, IND.

Circle 138 on Reader Service Card
MATERIAL HANDLING ENGINEERING

booklet, gives courtesy rules, safety precautions, traffic control tips, and preventive maintenance check list.

Towmotor Corp.

Circle 424 on Reader Service Card

Move in Narrow Aisles

Electric trucks and hydraulic hand pallet trucks built for narrow aisle use, in 16-p. catalog. On-the-job photos show applications. Gives specs. Illustrates equipment, including new triple telescopic mast.

The Raymond Corp.

Circle 425 on Reader Service Card



Circle 425



Circle 426

Chain Selection Chart

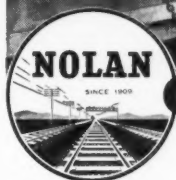
Chart recommends chain pitch sizes for power transmission. Gives horsepower on vertical scale, r.p.m. of small sprocket on horizontal scale.

Foote Bros. Gear & Machine Corp.

Circle 426 on Reader Service Card

Circle 90 on Reader Service Card

OPEN ANY FREIGHT CAR DOOR IN 20 SECONDS OR LESS with the



ONE-MAN CAR DOOR OPENER

Write for complete details
and railway products catalog

ONLY **\$4500**

F.O.B. Bowerston

The Nolan Co., 110 Pennsylvania St., Bowerston, Ohio

when you look for dockboards

COMPARE SIZE ... COMPARE PRICE

... COMPARE CAPACITY with

Langsenkamp's DOCK PLATE

**LIGHTWEIGHT—LOW-COST
SUPER STRENGTH
ALUMINUM**

GREATER CAPACITY PLUS ECONOMY!

Langsenkamp gives you an economical dock plate with greater work-load capacity to handle today's increased pay-loads.

It doesn't get tired! Special alloyed-aluminum has superior fatigue-resistance, giving Langsenkamp dock plates longer life.

Handling ease—Most sizes are so light in weight that one man can handle them easily.

9 Styles ... capacities up to 15,000 lbs. Over 65 stock sizes from 24 x 48" to 96 x 60" plus all popular options such as fork lift brackets, side rails and stop pins.

Exclusive—Optional abrasive safety surface gives permanent non-skid protection even when wet!

<p>6,500 lbs.</p> <p>BRAND X 24" x 48"</p>	<p>7,000 lbs.</p> <p>BRAND Y 24" x 48"</p>	<p>8,500 lbs.</p> <p>BRAND Z 24" x 48"</p>
---	---	---

12,000 lbs. Capacity - 24" x 48"

still as low as **\$49⁰⁰**

F. H. LANGSENKAMP COMPANY

229 E. South Street
Indianapolis, Indiana

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The QUALITY Bearing
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provide maximum service life at lowest possible cost. Widely used by major material handling, caster, wheel and farm equipment manufacturers. Write for Catalog and Specification sheets today.



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 9161 King Street • Franklin Park, Illinois
 "BUILDING A REPUTATION ON SERVICE"

JOYCE
MATERIALIFTS®
Speed Materials Handling!



ALL TYPES AND SIZES

Single and Two-Post Platform Lifts... Dock Handling Equipment... Factory Truck Service Lifts... Special Hydraulic Lifts... Hydraulic Cylinders—All Sizes... Compression Devices... Elevator Components... Custom Engineered Material Handling Products... SEND COUPON FOR NEW BULLETIN 441 TODAY!

THE JOYCE-CRIDLAND COMPANY, DAYTON 3, OHIO
 Rush Bulletin 441 on MATERIALIFTS!

NAME _____

COMPANY _____

ADDRESS _____

Circle 59 on Reader Service Card

BULLETINS CATALOGS FILMS

Lift Truck Powered Like Railroad Locomotive

Gas engine drives new GLF trucks through Series H silicone-insulated electric motor, using principle of diesel-electric locomotives. Illustrated 16-p. booklet "Facts & Factors" pictures engine, generator, drive motor, explains all features of new trucks. Gives specifications and performance data for 13 models that have capacities (at 24 in.) ranging from 1½ tons to 4 tons. Shows accessories, 3 mast options.

Automatic Transportation Co.

Circle 427 on Reader Service Card

Tubular Containers, Their Closures

Twenty-one varieties of cans and containers made from spirally wound paper or plastic tubing, presented in 4-p. folder. Explains uses of standard types, offers design assistance for package or label development.

The Cleveland Container Co.

Circle 428 on Reader Service Card

Fork Truck Specification Chart

One chart gives standard specifications for 43 models of Towmotor fork lift trucks, 4 tractors, an electric pallet truck. Condensed easy-to-read sheet folds to 8½ x 11 in.

Towmotor Corp.

Circle 429 on Reader Service Card

In the Yard or in the Plant...



EUCLID'S "pace"
the Assembly Line

Euclid Cranes prove an important link on the chain of operations required to convert incoming materials into outgoing products in a vast number of manufacturing plants.

Facility of movement through ease of precision control enables "Euclids" to handle a large variety of production operations, and to readily "pace" the assembly line. Write us concerning your crane problems. We'll be pleased to submit a proposal.



THE EUCLID CRANE & HOIST CO.

1365 CHARDON ROAD
 CLEVELAND 17, OHIO

Circle 44 on Reader Service Card
 MATERIAL HANDLING ENGINEERING

Power Package Stars in New Lift Truck

Two new Clarklift stand-up fork trucks have capacities of 2,000 and 2,500 lb. at 24 in. Bulletin SS-2067 emphasizes unique features of high performance power package, which has water-cooled engine, power gear shift, with torque converter, extra accessibility.

Clark Equipment Co.

Circle 430 on Reader Service Card

Horizontal Conveyors

Five types of horizontal powered conveyors illustrated in 8-p. bulletin. Includes wheel, roller, live-roller, belt-on-roller models, table conveyors, turntable conveyors. Specifications give dimensions, speeds, power needed.

The Rapids-Standard Co. Inc.

Circle 431 on Reader Service Card

System Loads Fast

Load a 30-ft. trailer in 3 minutes, unload it in 10, using Relae system with pallets, chutes. Folder tells how in 4 pages, also explains use of system with fork trucks (load in 30 minutes, unload in 20), and how an attachment to truck enables you to use system where there is no dock.

Kappen Sales Company

Circle 432 on Reader Service Card

Automatic Batching Systems

Complete systems for automatic batching described in Bulletin 2964. Can weigh 20 or more ingredients into weigh hopper. Typical large installation delivers 7,000

Circle 35 on Reader Service Card

STACKED IN YOUR FAVOR...



DURA-BINS

FOR MATERIAL HANDLING

Stacked or in motion, DURA-BINS cradle materials from damage... provide the long service only 100% hardwood bins can give.

For flexibility, these rugged DURA-BINS are fastened with patented Klimps®—no nails, straps, or wires that quickly fail under stress, requiring costly repairs. As a result, they're fastened securely, but can be quickly disassembled to 1/5 their assembled size for storage when not in use. And they're custom built to suit your material, storage facilities, and material handling equipment.

Write for full information about the versatile DURA-BIN, the first-line bin box for material handling and storage.



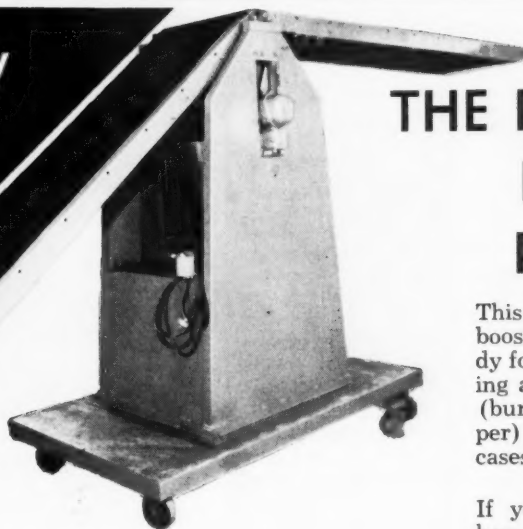
1954 POST ROAD, DARIEN, CONNECTICUT

FACTORIES AT: BIDDEFORD, MAINE
BELLOWS FALLS, VT. (2) • MIDDLETOWN, N. Y. • LYNCHBURG, VA.

It's Revolutionary

THE ALL NEW Styl-O-Veyor® PATENTED

PORTABLE BELT BOOSTER



THE DRIVE IS IN THE PULLEY

This all purpose belt booster is extremely handy for loading or unloading and stacking of bags (burlap or multiwall paper), cartons and large cases.

If your plant does not have a loading platform and the plant is on ground level, then you need this unit to ease the exhausting strain on your employees.

The only completely adjustable belt booster on the market today.

ISLAND EQUIPMENT CORP.

P. O. Box 380276
Miami 38, Florida

Write for
Bulletin
SVB-1
today

Serving Industry 20th Year
Circle 57 on Reader Service Card

WHEEL CONVEYORS



All steel or lightweight aluminum models in 12", 18" or 24" widths with from 6 to 24 wheels per foot. Straight sections, 45° and 90° curved sections, spur curves, flop-over section "Y" branch curves, reversible power turntables and other wheel conveyor accessories. Adjustable, welded steel temporary and permanent stands. Lightweight portable stands and supports also available. Write for Catalog 750C.

OLSON CONVEYORS

MANUFACTURED BY
SAMUEL OLSON MFG. CO., INC.
2426 Bloomingdale Avenue • Chicago 47, Illinois
DIVISION OF CHERRY-BURRELL CORPORATION

new

Versatile

22 x 14 x 5



PATENTED
2,823,826
2,823,829



Stack-n-Nest® TOTE PAN

This new Lewis Stack-n-Nest tote pan has been designed to work in conjunction with the popular 22 x 14 x 8 size. Pans will interstack and inter-nest. Covers and dollies can also be utilized as shown.

22 x 14 COVER

22 x 14 x 5 PAN

22 x 14 x 8 PAN

22 x 14 DOLLY

Molded in one-piece of Fiberglass reinforced polyester, these pans stack and nest within their own dimension, without mechanical gadgets. Can't rust, rot, corrode . . . exceptionally strong. Available in 9 sizes. Covers and dollies for several sizes available.

SHIPMENT WITHIN 24 HOURS FROM RECEIPT OF ORDER

G.B. Lewis COMPANY
606 Montgomery Street, Watertown, Wisconsin
Write today for illustrated brochure and prices.

Circle 65 on Reader Service Card

BULLETINS CATALOGS FILMS

lb. of batch from one line in 10 minutes, including loading, mixing, unloading. Features fail-safe interlocks. May incorporate automatic records, with typed log of weights, running inventory of materials used, tape storage of weight data.

Toledo Scale Corp.

Circle 438 on Reader Service Card

Counters Tabulate Fast

Multiple-unit hand-operated counters make tallying quicker, easier. Vary-Tally can be used for inventory counts, making take-offs from plan drawings for estimating total costs, product inspection and quality control. Quick reset. One to 24 or more counters per assembly. Uses shown in 4-p. bulletin.

Veeder-Root, Inc.

Circle 439 on Reader Service Card

Unusual Industrial Trucks

Hoister truck includes its own overhead trolley chain hoist, handles up to 4 tons, is walkie electrically powered . . . tank van walkie carries 5,000 lb. of liquid . . . dumper van walkie dumps own 5,000 lb. load. These and other special trucks shown in pictures, with specifications, in new bulletin.

Vanguard Manufacturing Co.

Circle 440 on Reader Service Card

Boltless Shelving

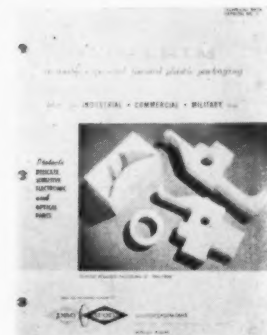
All steel shelving, boxes, bins, drawers of Penco line covered in 36-p. Catalog 2400. Assembly by clips eliminates bolts, speeds set-up, makes rigid, strong shelves.

Penco Div., Alan Wood Steel Co.

Circle 441 on Reader Service Card



Circle 441



Circle 442

Re-Usable Foamed Plastic Pads

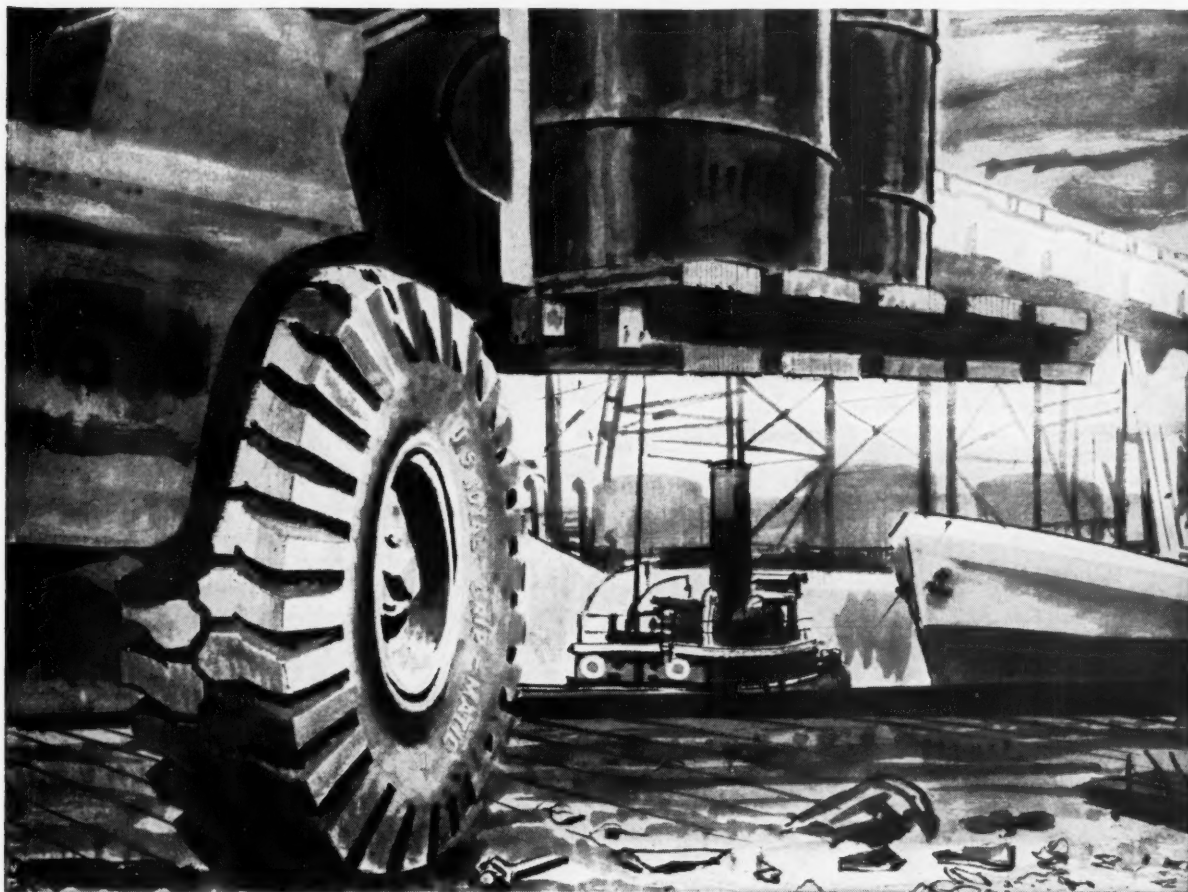
Technical data on re-usable expanded-foam plastic for handling and packaging delicate products provided in 12-p. catalog. Information includes abrasion resistance, insulation value, "memory" of initial shape, and slow controlled rebound rate.

Pac-Tron, Inc.

Circle 442 on Reader Service Card

S.R.T.*

licks the major causes of tire failure!




NEW STEEL ARMOR DISCOURAGES CUTS, BRUISES, PUNCTURES—U.S. ROYAL GRIP-MATIC S.R.T.

The SRT*—Steel-Reinforced Tread and Sidewall—in U.S. Royal Grip-Matic Tires provides the toughest industrial pneumatic ever!

As you can see, a thick layer of rubber containing thousands of short steel filaments forms a virtually impenetrable mat that guards tread and sidewall against cuts, ruptures and penetrations. You enjoy less tire repair, less vehicle downtime, increased tire life. And you get better traction, too, for the U.S. Royal Grip-Matic gives you sure grip on slick ramps and yard areas!

Don't forget to specify "U.S. ROYAL" on your new equipment.

U.S. ROYAL TIRES

 **United States Rubber**

Rockefeller Center, New York 20, N.Y.

Circle 129 on Reader Service Card



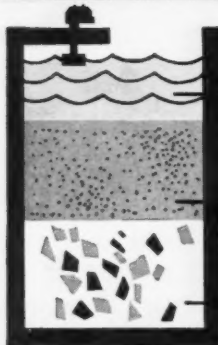
Mr. W. J. Shalley
Industrial Tire Dept., U.S. Rubber
Rockefeller Center, New York 20, N. Y.
Please rush me your complete industrial tire manual.

Name

Address

City & State

NOW! LOW-COST LEVEL CONTROL



... for liquids

... for powders

... for grains

Positive measurement and control of material levels can be obtained with low cost W & C Prob-A-Larms. Prob-A-Larms, are standardized capacitance type probes available in several local and remote models; All Prob-A-Larms are fail-safe.

WRITE FOR FREE CATALOG.

*Trademark



Weighing & Controls

Division of
CompuDyne Corporation



Compression plates, properly spaced teeth, precision-made bolts and nuts assure . . .

tremendous holding power at the vital point!

Positive gripping action on both sides of belt...trough naturally . . . distribute pull or tension evenly across joint . . . reduce maintenance headaches.

Available in Steel, Monel, Stainless, Everdur Also Promal top plates.

Order from your distributor, or write to us for Bulletin F-112.

NEW "25-PAK"



"25-PAK" contains enough fasteners to join common belt widths.

"FOR THE SPLICE OF A LIFETIME"

Flexible STEEL LACING COMPANY

4717 LEXINGTON ST. • CHICAGO 44, ILLINOIS
Circle 47 on Reader Service Card

BULLETINS CATALOGS FILMS

Make Shelves, Racks with 5 Fittings

With only 5 basic fittings types you can make pipe into bins, pallet racks, hat-tree racks, shelving, safety railings, etc. Lock on with Allen wrench, no threading required. Eight-page booklet shows how, gives engineering data and dimensions.

Hollaender Mfg. Co.

Circle 443 on Reader Service Card

Makes Fork Truck into Shovel, Snow Plow

Attachments for standard fork trucks make them into front-end loader shovels or snow plows. Booklet shows how accessories hook on, gives dimensions, capacities, ordering information.

Allen Industrial Products, Inc.

Circle 444 on Reader Service Card

Steel Skids, Pallets, Skid Boxes

Steel skids, rigid and collapsible skid boxes, pallets, and drum racks which also serve as pallets described in 20-p. booklet "Republic Steel Material Handling Equipment." Provides standard specifications, explains construction details, optional features.

Republic Steel Corp.

Circle 445 on Reader Service Card

Battery Powered Fork Truck

Bulletin SS-478 describes and illustrates the Utilitrac 7024. This battery powered fork truck has 7,000 lb capacity. Complete dimensional and engineering specifications are given. A capacity chart and a table of upright dimensions are included, along with information on power supply, speeds and grades, drive motor, drive control, brakes, and hydraulic system.

Clark Equipment Co.

Circle 446 on Reader Service Card

Pushbutton Parcel Sorting

Operator reads order or address on parcel, punches buttons corresponding to code number of sorting bin. Conveyor then takes package, "remembers" destination code, and delivers parcel to the right bin. This elegant equipment clearly shown by pictures and drawings in 4-p. folder.

Jervis B. Webb Co.

Circle 447 on Reader Service Card

Comprehensive Plastics Catalog

Over 800 items, including plastic film, bags, bottles, included in 192-p. "Plastic Users' Catalog." Covers new types of plastics such as Delrin, Lexan, Polyestere, Polypropylene, Penton. Furnished to engineers and purchasing agents.

Industrial Plastic Supply Div., Industrial Safety Supply Co.

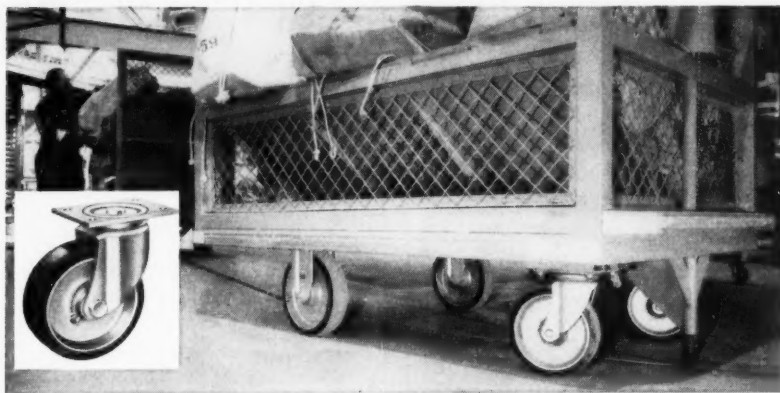
Circle 448 on Reader Service Card

MATERIALS-HANDLING NEWS

NEW AND UNUSUAL APPLICATIONS OF BASSICK CASTERS THAT MIGHT BE ADAPTED TO YOUR HANDLING PROBLEMS

CASTERS HELP FEED ROBOTS

in first fully automated U.S. Post Office



The latest, most advanced mail-handling devices in the U. S. are at the new "automatic" Post Office in Providence, R.I.

But hard-working Postal employees still have to move mountains of mail to the machines—and deliver it after processing. And that's where Bassick casters come in.

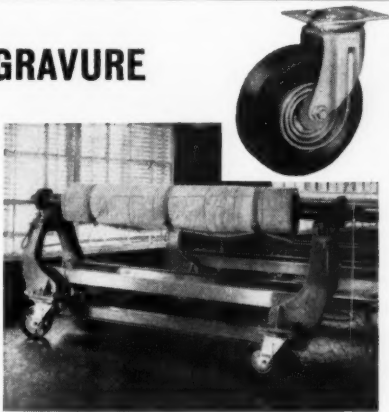
Mail sacks move quickly and easily through the Providence Post Office on

this Towveyor . . . on reliable Bassick "S99" swivel and "S98" rigid casters.

These heavy-duty casters are built to take the abuse of power-pulled applications at all Towveyor speeds. They come in 3", 5", 6", 8", and 10" sizes with a broad selection of wheel types. Strong, extra-heavy-gauge steel. Ideal for dollies, assembly fixtures, and warehouse trucks as well as draglines.

SMOOTH ROLLING ROTOGRAVURE

One of the world's largest printing companies uses these special dollies to transport rotogravure cylinders safely to the presses. Featured here are Bassick "Floating Hub" casters—the casters with built-in shock absorbers. "Floating Hubs" eliminate bounce and caster shimmy, and aid in "climbing" over minor floor obstacles. They're ideal for handling a wide variety of delicate equipment and fragile products.



CAUGHT IN A "PROFIT-SQUEEZE"?

Switch to Bassick casters and cut a big slice out of materials-handling costs—said to amount to 30% in the average manufacturing plant.

You'll save on decreased maintenance for casters, equipment and floors. What's more, Bassick casters roll and swivel so easily they make a real hit with operating personnel.

THE MAN TO SEE

. . . is your distributor who carries Bassick casters. He has a wide range of caster sizes and types in stock for fast delivery. He can help you select the right caster for your job.

1.42

THE
BASSICK COMPANY
BRIDGEPORT 5, CONN.
IN CANADA:
BELLEVILLE, ONT.



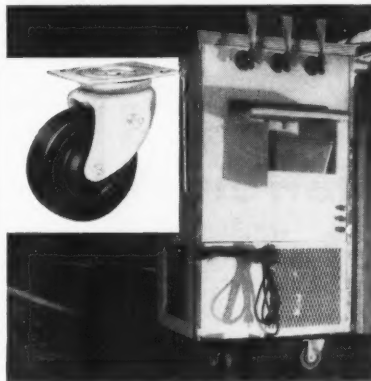
STEWART-WARNER CORPORATION

Circle 12 on Reader Service Card



Blind Spot in History

Before Columbus, wheels—so important to modern life—were known only as toys, like this Aztec plaything, to the Indians of America. It was a thousand years after this toy was made before these early Americans used the "wheel" for practical purposes.



BASSICKS HELP BEAT THE HEAT HERE

This mobile beverage cooler and dispenser goes where it's needed on easy rolling, easy swiveling Bassick casters.

The Bassick "Qualecon" casters used here feature maximum caster quality at minimum cost. Recommended for hundreds of other medium-duty applications, too.



Barrett electric Palletox with power up and power down

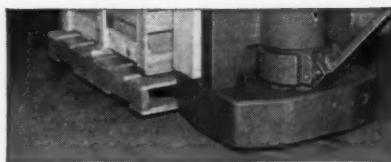
Here—for the first time—a power truck which handles empty pallets!

Push the *power-down* button. Pallet wheels retract completely for full clearance into the pallet. "Flying Saucer" wheels skim easily into unchamfered pallets. Push the *power-up* button. Up and away goes the load.

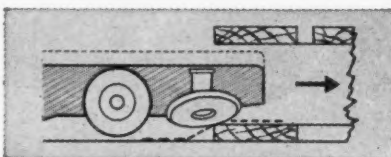
Yes—power up and power down. Completely new and *exclusive* by Barrett.

Power down for positive, easy pallet wheel control is the **BIG** feature. This new Palletox also turns on short radius. Has thumb-touch butterfly speed control. Full automotive-type braking. Simple to maintain. Loaded with value!

WRITE FOR PALLETTOX
BULLETIN 587 AND PRICES



Power up and power down mean full clearance into pallet. Palletox handles empty pallets as easily as it handles full ones. A Barrett exclusive!



Another Barrett exclusive: "Flying Saucer" wheels skim into unchamfered pallets—quickly, easily.

BARRETT

Barrett-Cravens Company, 614 Dundee Road, Northbrook, Illinois. Representatives in All Principal Cities.

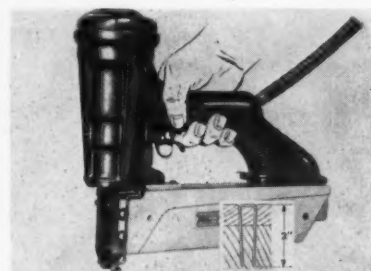
Circle 9 on Reader Service Card

PRODUCT NEWS

Continued from page 52

Heavy Duty Staple Nailer

Air-powered Duo-Fast S-763 staple nailer drives 2-in. staples. Made for



heavy packaging and crating. Works from magazine.

Fastener Corp.

Circle 315 on Reader Service Card

All-plastic Carboy

No overpack is needed with this 15-gallon capacity carboy. Company says the Interstate Commerce Commission has given the authorization



to ship regulated chemicals without the overpack. Made from a copolymer of polyethylene, the carboy is injection-molded in two parts, then welded together. Drum-shaped, the carboy rolls and stacks easily. Outside dimensions: 17½" diameter, 20½" length. Empty weight: 17 lb. You use a standard polyethylene chemical pump with it.

Plastineers, Inc.

Circle 316 on Reader Service Card

Compact Imprinter

Cartoning machine attachment imprints control numbers, codes, prices, etc., on the bodies or flaps of folding cartons. Imprinter fits all makes of

Continued on page 100

MATERIAL HANDLING ENGINEERING

IT'S BOUND TO BE BETTER WITH **USS** STEEL STRAPPING

Round Steel Strapping carries the load at Carborundum... cuts costs in half!



Slings made from strong 8-gauge USS Round Steel Strapping hoist 2500-pound palletized loads of "Ferrocarbo Briquettes" at the Electro Minerals Division of Carborundum Company. According to Mr. S. E. Eggleston, Supervising Engineer, "We needed a safer method for lifting our briquette loads. Normally, we use steel strapping just for bundling and palletizing, but we found that these preformed slings were strong enough to lift heavy loads. And the USS Model G Strapping Machine gave the right tie so the slings wouldn't break, slide, or deform. They lift, carry, and lower our loads safely and securely . . . and cut our material costs by 50%."

The loads consist of 30 briquette cartons tied down by USS Round Steel Strapping . . . it makes a neat, compact package. The entire strapping operation including the lifting slings takes Carborundum only 6 minutes. Round steel strapping cuts labor time 10%, eliminates shipping delays, ends customer complaints because merchandise arrives undamaged.

U. S. Steel Supply furnishes both round and flat steel strapping, automatic and semi-automatic strapping tools . . . and our strapping specialists are ready to assist you in any packaging, palletizing, and car-loading operation. For more information, send the coupon.



TRADEMARK

**U. S. Steel Supply
Division of
United States Steel**

U. S. Steel Supply
U. S. Steel Corporation
208 South LaSalle Street
Chicago 4, Illinois

Please send me more information on USS Round and Flat Steel Strapping.

Name

Company

Address

City Zone State

Circle 130 on Reader Service Card

DERBY

... designers and manufacturers
of the world's largest selection of
tape and label dispensers ...

NOW BRINGS YOU ...
THE LOWEST PRICED
SHIPPING ROOM ELECTRIC
ON THE MARKET!

The Revolutionary NEW
DERBY
"310"



The new Derby "310" Electric dispenses a variety of lengths of both reinforced and Kraft tapes in widths up to three inches. No dials to set, no adjustments to make ... a touch delivers any length instantly. You can't beat the Derby "310" for economy and simplicity. Prove it in your own shipping room without obligation!

DERBY SEALERS DIVISION
MINNESOTA MINING AND MANUFACTURING COMPANY
DERBY, CONNECTICUT

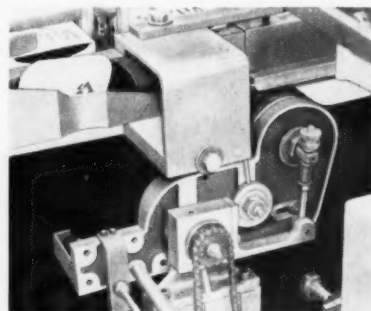


... WHERE RESEARCH
IS THE KEY TO TOMORROW

Circle 37 on Reader Service Card

PRODUCT NEWS

automatic cartoners. Comes in two basic styles. The 1270 imprinter applies the imprint from above, and the



1280, from below. Both are automatic, do not interfere with pushers or other parts of the cartoning machines. Full annular registration simplifies precise placement of imprints in any desired location.

Adolph Gottscho, Inc.

Circle 317 on Reader Service Card

New Electric Fork Truck

Stand-up electric truck features carbon pile speed control, can run at any speed from 1/100 m.p.h. to 7 m.p.h. Has extra-heavy counterbalancing frame that eliminates counterweights, makes truck stronger. High



speed lift, 40 f.p.m. with capacity 2,000 lb. load, 90 f.p.m. empty. Lift height is 130 in. Turning radius is 54 in. outside, 0 in. inside, and can turn from 60-in. aisle into 54-in. aisle with 36 x 36 in. load.

Lectro-Lift,

Circle 318 on Reader Service Card

Direction Changes Speeded

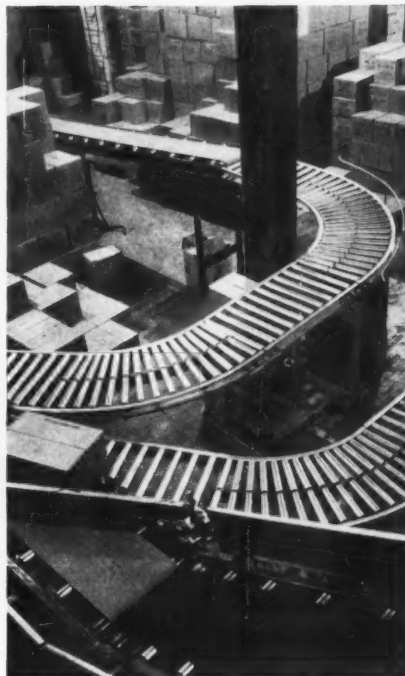
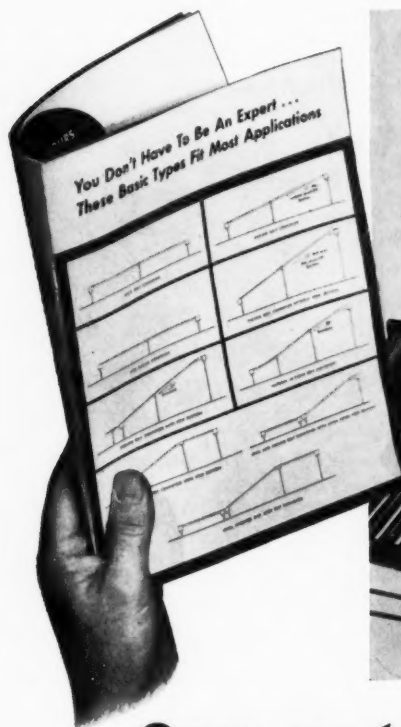
Three new gas-powered, pneu-

Continued on page 102

Read this...

Order this...

Install this...



Save up to $\frac{1}{3}$ the cost of your next conveyor with Handidrive components

Why pay big premiums for unnecessary custom engineering? Order your next conveyor mail order style . . . right out of STANDARD CONVEYOR's new *Handidrive Handbook*. Get fast delivery right off the shelf . . . save up to $\frac{1}{3}$ the usual cost.

How? Using this valuable new Handbook, you can plan your own installation, order the components you need from factory stock, and then assemble them yourself with simple tools to save on erection costs. And, should you need help, our conveyor specialist in your city will be happy to give free advice on layout, ordering, prices and installation.

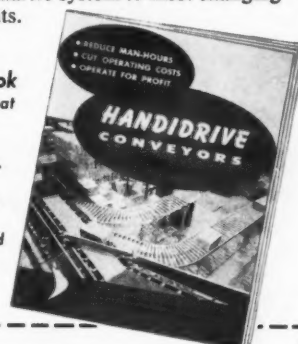
In-stock *Handidrive* components include gravity and power roller sections, belt sections, drive units, curves, supports, hangers, tapered sections, guardrails, feed sections, diverters —everything you normally need for an efficient, low-cost conveyor installation.

Moreover, all components are interchangeable to simplify future alteration of your *Handidrive* system to meet changing material handling requirements.

Check these Standard-ized Handidrive "right-off-the-shelf" benefits

- Lower initial cost . . . you buy only what you need!
- Inexpensive to alter or add to.
- Stock items cost us less to build . . . cost you less to buy!
- The most complete line of fully integrated units all from a single source.
- Ready to ship as fast as we can process your order!

Here's the Handbook that tells you exactly what to do to cut costs with pre-engineered **HANDIDRIVE** conveyors. Send for your free personal copy now. Just fill in the coupon, attach to your letterhead and mail. Do it today!



Standard Conveyor COMPANY

Sales and Service in Over 40 Cities
Look in your Yellow Pages under "CONVEYORS"

STANDARD CONVEYOR COMPANY

302-F Second Street, North Saint Paul 9, Minnesota

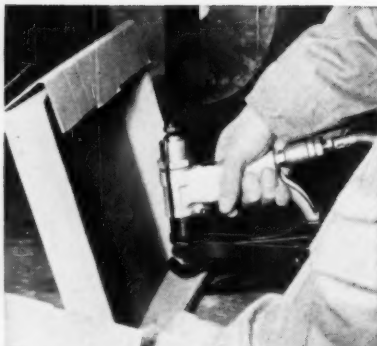
Please send me your new **HANDIDRIVE** Conveyor Handbook.

YOUR NAME _____

YOUR TITLE _____



Staple-nailing expendable skids, crates and boxes.



Portable stapling plier solves carton assembly problem.



Attaching shipping tags to filled corrugated cartons.



Fastening liners and protective pads to shipping containers.

***DUO-FAST* gives you four "extra men" in your packaging and shipping departments**



One man, plus a DUO-FAST Stapler, can out-work four men using old-fashioned fastening methods on industrial packaging. And that adds up to money saved.

Whether it is staple-nailing crates, assembling corrugated cartons, lining box cars, or attaching labels to filled cartons . . . DUO-FAST has the correct model and staple needed to do a good job, and do it fast!

You'll like DUO-FAST. You'll like the Free Service Guarantee. Write for the FT-17 Industrial Packaging Brochure, and the address of your DUO-FAST representative.

FASTENER CORPORATION 3700-A River Road, Franklin Park, Illinois 1270

DUO-FAST

Staplers
Tackers
Staples

Everything you need for tacking, stapling and nailing.

Circle 45 on Reader Service Card

PRODUCT NEWS

matic-tired fork trucks feature fully-synchronized friction clutch transmission. Enables truck to shift from forward to reverse without a complete stop. Eliminates gear clashing; speeds



handling on jobs needing frequent direction changes. This is a feature of the CFY-60, CFY-70, and CFY-80 trucks of 6,000, 7,000, and 8,000-lb. capacities. Designed for outside handling over piers, unpaved yards. Completes Clarklift line of pneumatic-tired equipment with capacities ranging from 2,000 to 70,000 lb. Another feature: extremely smooth hydraulic spot disc brakes; eliminate brake "grab."

*Industrial Truck Division
Clark Equipment Co.*

Circle 319 on Reader Service Card

Low Pressure Accumulation

A new low pressure live roller conveyor accumulates with a pressure of only 3½ percent of commodity weight. Belt-driven conveyor handles mixed packages without buckling or causing erratic conveyor performance. When released, packages move forward at same time; no gaps or lagging. Needs only half the horsepower normally required for equivalent-capacity accumulating live roller conveyors. Comes in seven widths, from



10½ inches to 38½ inches between frames. Pressure fails to break raw eggs (photo) suspended between 30-lb. cartons on conveyor running at 20 fpm.

Standard Conveyor Co.

Circle 320 on Reader Service Card

Continued on page 104

UNIT FLEET BUILT ON PAST PERFORMANCE

Handling scrap metal to-and-from stockpiles located in widely scattered areas, this 20-ton Model 1520 Mobile Crane combines one-man operation with fast travel speeds to keep material flowing smoothly to melting furnaces. This is the 5th UNIT material-handling crane for this firm, a major manufacturer of specialty steels. Purchase was made on the strength of previous fine performance of the other UNITS owned.

You, too, will find the UNIT 1520 with its interchangeable attachments—load block and hook, clamshell bucket, magnet, sling, etc.—is just the machine you need for efficient production handling of a wide variety of materials. Self-propelled, this Mobile Crane travels and works with just one engine . . . is driven and operated by just one man. With automotive-type power steering and a short turning radius, maneuverability is exceptional.

Important operating features include UNIT Torque Drive that provides regulated load handling by throttle control; an independent boom hoist, with power up and down, for safe precise handling; disc-type clutches for ease of control; simple, two pin adjustable outriggers for full stability over end or side; a heavy-duty A-frame for handling capacity loads with extended boom at long radius; and a streamlined FULL-VISION operator's cab for complete "all direction" visibility.

For lighter work, there's a the UNIT 357, a 15-ton Mobile Crane. UNIT also offers truck and crawler mounted cranes in sizes to fit any handling requirement—4 truck cranes lifting from 10 to 40 tons, 6 crawler cranes with lift capacities from 5½ tons and up. Want more facts? Contact your UNIT distributor or write direct.



UNIT
UNIT CRANE & SHOVEL CORP.

6531 W. Burnham Street
Milwaukee 19, Wisconsin

Circle 128 on Reader Service Card

SILENT HOIST LIFTRUK

MILL-TYPE TRUCK

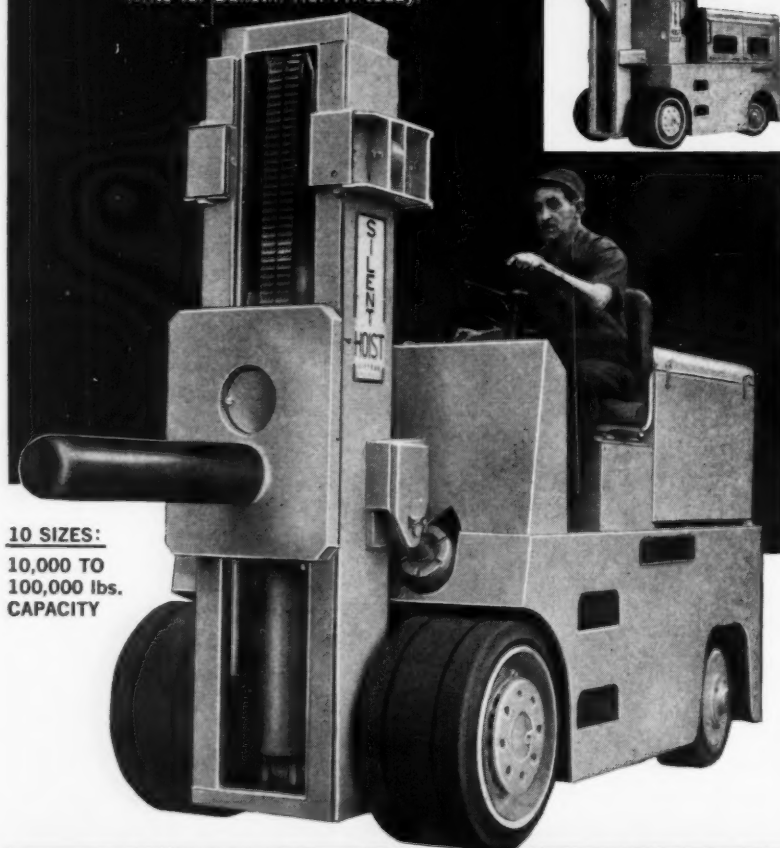
OPERATES 24 HOURS PER
DAY THROUGHOUT THE YEAR

Low Initial Investment

Known affectionately as Big Lug, LIFTRUK is equipped with split-ram or fork tines to give you continuous 24 hour production handling on a plant-wide variety of jobs. Here are a few of the features that put SILENT HOIST LIFTRUK far above "run-of-the-mill" equipment.

- Operates faster and produces more
- Planetary axle
- Automatic Transmission
- Power Steering
- Short turning radius
- Narrow width
- Gas, Diesel, or LP powered
- Unitized chassis and body, heavy steel plate

For complete information on SILENT HOIST LIFTRUK. Write for Bulletin No. 7R today.



10 SIZES:
10,000 TO
100,000 lbs.
CAPACITY

Stand up and
Sit down models



SILENT HOIST & CRANE CO. • BROOKLYN 20, N.Y.

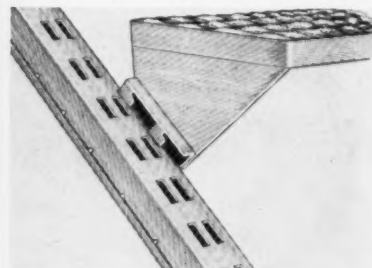
Circle 120 on Reader Service Card

PRODUCT

NEWS

Stairway Uses Rack Design

A portable safety tread stairway can be erected like a rack and relocated easily. It's part of the Ridg-U-



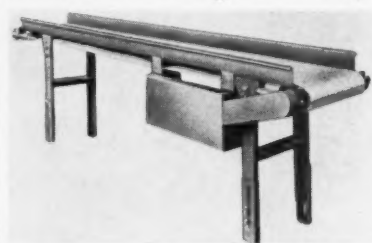
Rak system, developed from material handling shows. Company engineers created a stairway to a platform, received so many requests about it that they designed it into the line.

Bernard Gloekler North East Co.

Circle 321 on Reader Service Card

Conveyor Has Side Guards

Side guards integral with frame are a feature of "Unitrough" belt convey-



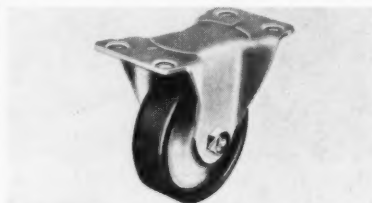
ors. For handling light articles. Furnished in standard 10 ft. lengths. Belt widths are 8, 10, 12, 14, 16, and 18 in. Beds may be either steel or stainless steel.

Conveyor Specialty Co.

Circle 322 on Reader Service Card

Guard Against Threads

New textile casters feature a high-capacity thread guard to cut downtime and maintenance. Load ratings of 100 to 3,000 lb. per caster. Stand-

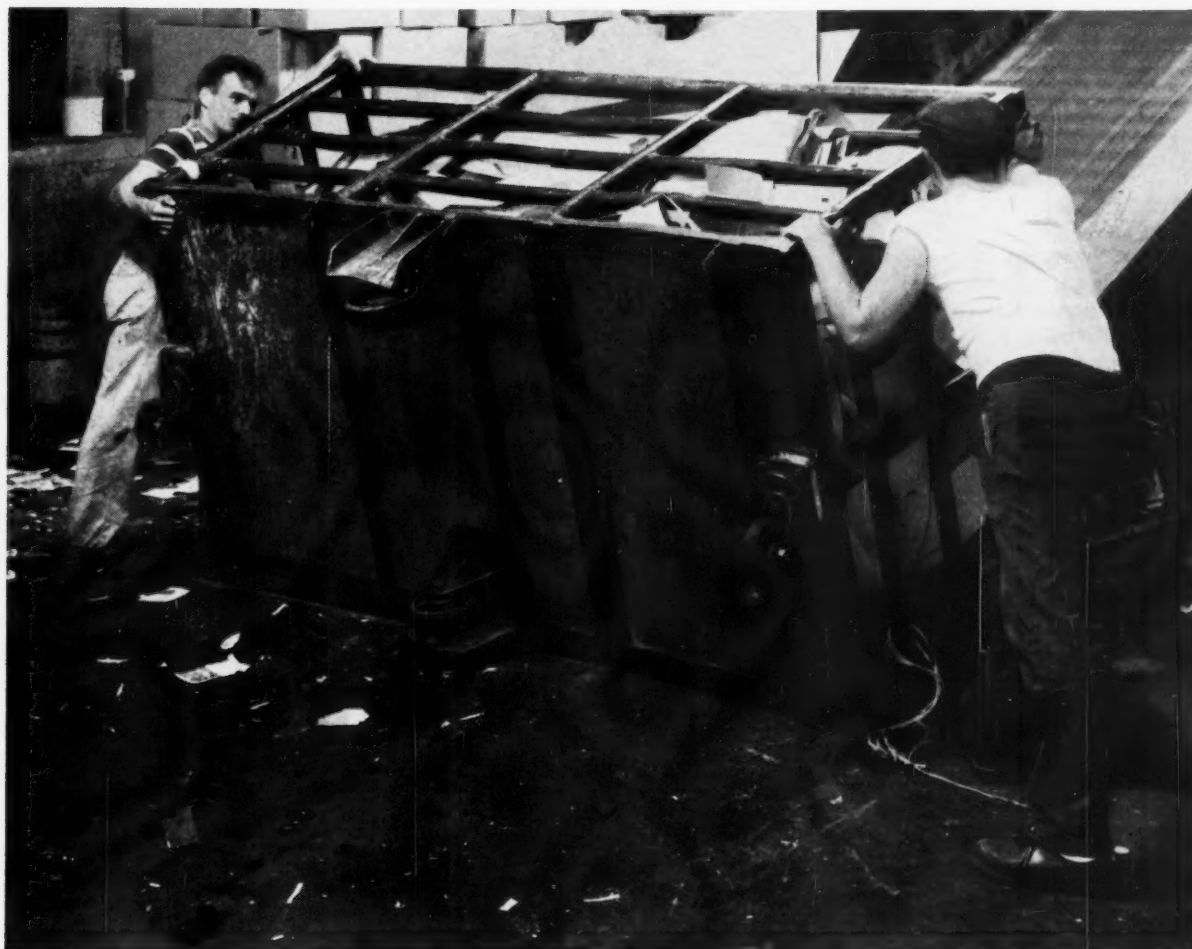


ard models come with special steel or phenolic resin wheel; also available with soft tread, hard tread rubber, and pneumatic tires.

The Rapids-Standard Co.

Circle 323 on Reader Service Card

MATERIAL HANDLING ENGINEERING



ADIPRENE® WHEELS OUTLAST RUBBER 2 to 1 IN THIS PUNISHING SIDE DUMPING SERVICE

These paper mill "broke" carts are loaded with up to 3000 pounds of paper, dragged over a steel-mesh-imbedded concrete floor, then pushed over on their *sides* for dumping. This side dumping procedure puts enormous strain on wheel rims—tears the heart out of solid rubber tires. But the paper manufacturer has found that his ADIPRENE wheels stand up twice as long under daily thumping, scraping, grinding treatment.

Yet, even this generous 2 to 1 service ratio is not really typical of ADIPRENE wheel life. In many instances, ADIPRENE wheels outlive others 3 to 1... often, 5 to 1.

Why? ADIPRENE combines resilience with high

hardness. ADIPRENE wheels can carry heavier loads without chipping, gouging or chunking. In addition, they offer outstanding resistance to abrasion and impact... have low starting and rolling resistance... withstand attack by oil, grease, ozone, oxygen, salt solutions and dilute mineral acids and alkalis. And they perform well even at low temperatures (brittle point is below -80°F.).

So, when considering solid tires, caster wheels and pallet wheels, specify ADIPRENE for long life and low maintenance.

For more information write E. I. du Pont de Nemours & Co. (Inc.), Elastomer Chemicals Dept. MHE-6, Wilmington 98, Delaware.



ADIPRENE®
URETHANE RUBBER

Better Things for Better Living... through Chemistry

Circle 41 on Reader Service Card



ASSOCIATIONS

MHEDA

Latest courses scheduled at the National Material Handling Center, Newport, R. I., are as follows: Week of June 19: "Paper Industry Distribution Material Handling"; Week of July 10: "Department Store Material Handling."

Don S. Ferguson, MHEDA president for 1961-62, presided at the final



Ferguson

session of the National Convention held June 1-3 at the Denver-Hilton Hotel, Denver. Ferguson, who succeeds Robert G. Arnold as MHEDA head, is the fifth president of this Association. He is vice president and secretary of the Robert H. Braun Co. and is in charge of all sales operations. He is a member of the Los Angeles Chapter of the American Material Handling Society since its organization and is currently a member of the board of directors. He is now serving as MHEDA Director of Region 10 (Southern California and Arizona). Ferguson was elected to the presidency at the June 2 morning session. Jack D. Patten was chairman of this year's meeting. Theme: "Better Methods For Profit."

AMHS

Indianapolis Chapter recently heard Don Kelsey of the Don Kelsey Co., Detroit, speak on material handling methods inside Russia. Kelsey recently made a tour there.

Rochester Chapter was recently addressed by Frank C. Wier, president of Midstate Industrial Truck. His subject: "Men and Machines in Material Handling."

Northern California Chapter's April meeting was on "Design of Fork Truck Uprights and Hydraulic System." The lifting mechanism was taken apart to show the function of each component. Discussion started with the elementary operations, proceeded into a semitechnical study of the mechanical and structural problems in the upright. The com-

plete hydraulic system was explained, and a review was given of the proper application of different upright designs.

Houston Chapter's April meeting was on "Labor Relations and Material Handling."

Minnesota Chapter's April meeting was on "Electricity and its Relationship to Material Handling." The program was given by Northern States Power Co. Subjects included industrial lighting and in-plant power distribution systems.

Over 200 members and wives of the Montreal Chapter recently toured new and old buildings of the Steinberg's Limited grocery distribution center in Montreal. Handling methods include a conveyor system with automatic electronic weighing gear for transporting meat and a bulk handling system of shipments onto trucks for distribution to any of the 90 Steinberg stores.

The Cleveland Chapter presented two awards for the best material handling installations made during 1960 in the non-manufacturing area. Left, Charles Engel describes the



system that brought an award to his company, General Tire & Rubber Co. Right, Harold Greenwald tells about improvements that made his system a winner at Majestic Specialties, Inc. (This distribution center was described in *Flexible Handling Fills Orders*, MHE, November 1960.) Certificates were presented by Awards Chairman Art Beedle.

Denver Chapter's May meeting covered "Data Processing in the Manufacturing Organization." Speaker:



P. A. Lunday of the Martin Co. He stressed the importance of material control, scheduling, and dispatching.

RMI

D. W. Jarke, president of Jarke Mfg. Co., has been appointed president and chairman of the board of the Rack Manufacturers' Institute.

ICCA

International Corrugated Case Association was organized in Paris, France on March 17. Jerome H. Stone, executive vice president, Stone Container Corp., and president of the Fibre Box Association, was elected president. Representatives of corrugated box associations from 19 nations whose members produce about 80 percent of the world production of corrugated shipping cases were at the meeting. Other officers are: Dr. W. F. Klingele, of Heidelberg, Germany, vice president; R. du Boucheron, Paris, executive secretary for Europe; and Albert W. Luhrs, executive manager, Fibre Box Association, executive secretary, other nations. Next meeting will be held in New York City this fall.

SPHE

Eastern Chapter's May meeting featured an address by Louis F. Madeira, Technical Sales Service Section, Armstrong Cork Co. His subject: "Successful Package" in which he told how a properly and scientifically designed package cushion may be expected to perform efficiently and protect the cushioned item from damage.

FPBA

Shipments of folding cartons during the first quarter of 1961 declined 5.3 percent from the same period last year. Decreases from 3 to 9 percent in dollar volume were recorded in each of the three months. Tonnage was off similarly. Industry volume for the quarter is estimated at \$220.8 million with 547,100 tons shipped.



**STRENGTH OF
STEEL**

**HANDLE LIKE
HEMP**

ROEBLING ROEGAL® CABLE-LAID SLINGS

The *strength* comes from seven individual preformed Roegal wire ropes — ropes made by Roebing expressly for use in cable-laid slings. In addition, the tapered sleeve splice develops the full catalog strength of the sling body. And the special galvanized finish provides corrosion-resistance without any reduction of the wire rope's tensile strength or toughness.

The *hemp-like* handling qualities are provided by the cable-laid construction. It gives highest flexibility, beats kinking and crankiness.

The *combination* is a marvel of working convenience. The extra-flexible construction keeps handling and rigging time to a minimum. And in addition to corrosion-

resistance, the Roegal coating provides a clean finish. These assets make Roebing Roegal Cable-Laid Slings particularly effective if you're handling pipe, tubing or finished machined parts.

Available in a variety of sizes, as chokers or in single-leg and multi-leg constructions. Beside loops, end fittings include hooks, thimbles, shackles, open and closed swaged sockets. Find out today from your Roebing distributor how much of a lift Roegal Cable-Laid Slings can give you . . . or write to Roebing's Wire Rope Division, Trenton 2, New Jersey.

ROEBLING 

Branch Offices in Principal Cities
John A. Roebing's Sons Division
The Colorado Fuel and Iron Corp.

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\$1695⁰⁰
BUYS THIS
2000 lb.
CAPACITY TRUCK



NEW Walkie Worklifter®

**Priced \$500⁰⁰ under
previous straddle models**

A fine, new standard line of 2000 lb. capacity fork trucks... lifts to 120" (30" to 48" pallet widths up to 42" long)... an agile middleweight... operates on light floors, narrow aisles... solid construction, yet simple, easy to maintain... choice of batteries and chargers... quality controls... polyurethane wheels... a reliable full 8-hr. day's duty, year after year... from \$1695 for 90" model, plus battery and charger; \$1795 for 120" lift.

Write for Full Color Specification Brochure

ECONOMY 4524 W. Lake St.
 CHICAGO TRAMRAIL CORP. Chicago 24, Ill.
 Representatives in principal industrial areas

Circle 148 on Reader Service Card

108



INDUSTRY NEWS

Schirmer Elected Executive VP at Clark Equipment Co.

Walter E. Schirmer has been elected executive vice president for Clark Equipment Co. He has been with the company 24 years, has been a vice president since 1958. He also has been president of Clark Equipment International, C.A. since 1958.



Schirmer

Schirmer will work with George Spatta, president, in the overall management of Clark, with his efforts directed to domestic and international operations. A graduate engineer and a lawyer, Schirmer's first position with Clark in 1937 was as head of the legal department. He subsequently was executive assistant to the president during World War II and sales manager and vice president of the Industrial Truck Division.

The executive vice presidency office had been vacant since Spatta was promoted from that position to the presidency in 1945.

Caterpillar Tractor Co. Announces Executive Changes



McBrien



Morgan

Caterpillar Tractor Co. announces the appointment of three executives to new positions upon the retirement of two vice presidents. The changes were effective June 1.

Retiring were Gail E. Spain, who had administrative responsibility for foreign marketing, and Henry H. Howard, in charge of the company's Engine Division.

Vice President W. J. McBrien succeeds Spain and also becomes president of the subsidiary companies,

Caterpillar Americas and Caterpillar of Delaware.

Lee L. Morgan succeeds Howard and also assumes administrative responsibility for the company's Defense Products Department. E. C. Chapman, formerly assistant sales development manager, succeeds Morgan as manager of sales development.

Alvey Conveyor Forms New Export Division

To better serve foreign markets and customers, a special division for handling all export sales has been established by the Alvey Conveyor Mfg. Co. This division will be headed by Ernest Auerbacher who has been with the company for 15 years.

C. K. Aaron Heads Wayne Pump Canada

Charles K. Aaron has been named president of Wayne Pump Canada Limited. Mr. Aaron was formerly assistant to A. E. Trafford-Owen, whom he succeeds.

The Canadian company, a subsidiary of The Wayne Pump Company Division of Symington Wayne Corp. makes a complete line of service station equipment and industrial lifting equipment.

Aaron has been with the company since 1952. Mr. Trafford-Owen, who retired March 31, has returned to his native England.



Aaron

Conco Engineering Expansion Takes In Chicago Tramrail Corp.

Conco Engineering Works, Inc., a subsidiary of H. D. Conkey & Co. has purchased the business and manufacturing facilities of the Chicago Tramrail Corp.

The new acquisition will operate as the Chicago Tramrail Division of Conco Engineering Works, Inc. Purchase of the Chicago Tramrail Corp. coincides with the retirement of Claude Riemenschneider, founder and president of Chicago Tramrail.

Continued on page 110

MATERIAL HANDLING ENGINEERING

put your storage-rack dollars where they count most!

CONCENTRATE

on *American*

adjustable STORAGE RACKS

the engineered racks that fill the bill most efficiently!

American Slide-n-Lock selective type racks

for all types of merchandise—whether light packages or heavy metal products.

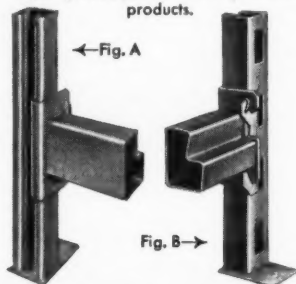
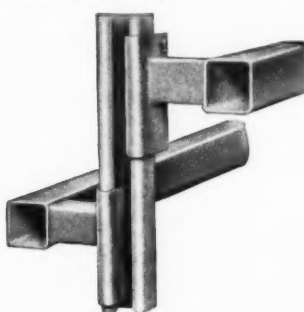


Fig. A—smooth line construction of aisle side of post and stringer eliminates hazardous protrusions. Fig. B—note rigid connection when stringer is "locked" to post.

American Open-End drive-in type racks

make aisle space storage space . . . Ideal for bulk storage

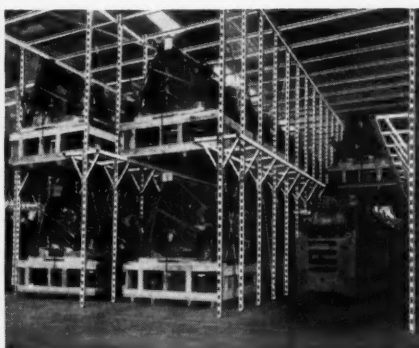
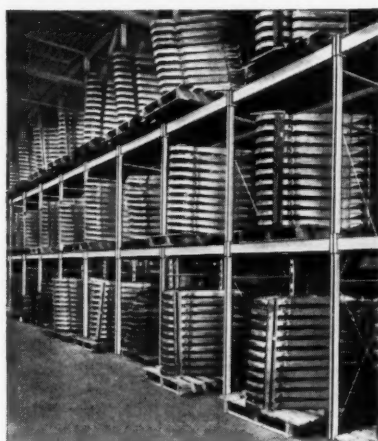


Sturdy, load-carrying Stringers are made of rugged square tubing from one end of a row to the other.

YOU can always count on American Adjustable Storage Racks for

**Quick Assembly . . . Solid Construction
Easy Adjustability . . . Top Efficiency**

These features save you time, labor, storage space and money, and provide industry's highest safety factor. American Posts are specially roll-formed of heavy gage steel . . . Stringers are one-piece continuous welded steel tubing—they work independently of any other part, and raise and lower like a window on 4" centers . . . Upright Frames are cross-braced against sway—turnbuckles "level out" uneven floors. In American Racks there is no costly bolting.



send for catalog



AMERICAN METAL PRODUCTS COMPANY
STORAGE RACK DEPARTMENT

5961 Linsdale Ave. **amp**® Detroit 4, Michigan

Manufactured in Canada by Sunshine-Waterloo Co., Ltd., Waterloo, Ontario
Circle 7 on Reader Service Card

Circle 136 on Reader Service Card

**DRUMS . . . Pick Up,
Move, Stack, Dump —
Easier, Faster**



Great time-savers, at new low cost, HY-BOY "Verti-Lifts" load, unload, store, stack drums in less time and effort. More important—they provide fast, safe front or side tilting mechanism for efficient "last-drop" emptying. Electro-Hydraulically operated, with heavy duty battery, built-in charger, capacity, 1500 lbs., available in models for lifts from 60" to 112".

Write for HY-BOY Catalog CM-558 and prices on new Drum Handling HY-BOY Verti-Lift Portable Elevators.

WEST BEND EQUIPMENT CORP.
MATERIALS HANDLING ENGINEERS

335 WATER STREET • WEST BEND, WISCONSIN

INDUSTRY NEWS

Hough Co. Appoints Assistant to Ad Manager

John C. Miller has been appointed assistant to the advertising manager at the Frank G. Hough Co. For the last four years, he was advertising manager for the W. L. Ballentine Co., Ltd., with headquarters in Toronto, Ontario.



Miller

Madison L. Crawford is manager of advertising and sales promotion. R. E. Connolly continues as assistant ad manager.

Martin Heads Detroit Hoist and Machine Co.

George B. Martin has been elected president of Detroit Hoist and Machine Co. He succeeds A. S. Watson, who has retired after 51 years' company service.

Watson has been appointed chairman of the board and will continue his interest in company affairs. T. R. Fleming was re-elected vice president

and Miss Bertha A. Hinman, secretary. R. W. Fleming was elected treasurer.

James A. Western, chief engineer, and Vernon A. Fulton, sales manager, were elected corporation directors.

OBITUARY

Frank S. Carlile, 72, co-founder of C & D Batteries, died March 30 after suffering a heart attack in Valpariso, Chile. He was on a vacation cruise with Mrs. Carlile.

Mr. Carlile, with the late Leon A. Doughty, founded the firm "Carlile & Doughty" in 1906. He had been active in the company up to the start of his vacation. He had been board chairman from the time of Mr. Doughty's death in May, 1957 until Sept. 1959 when the company became C & D Batteries, Div. The Electric Autolite Co. Since then, he had been serving as a consultant.

DFI Promotes Osterhus and Hood

Appointments of Ervin J. Osterhus as executive vice president and Walter J. Hood as vice president-engineering are announced by Designers

MAKE EFFICIENT SYSTEMS from BUSCHMAN IN-STOCK units

Buschman standardized portable conveyors save far more than they cost, handling all kinds of packages, in large and small operations. Select wheel, roller, belt components from stock, to install your own conveyor line. Or build your own Overhead Trolley Cable Conveyor from Buschman standardized units. Consult our agent or write direct.

Complete Conveyor Systems for all Industries—Engineered, Manufactured, Installed
Representatives in Principal Cities. See Yellow Pages



Buschman
CONVEYORS

The E. W. Buschman Company, 4450 Clifton Avenue, Cincinnati 32, Ohio

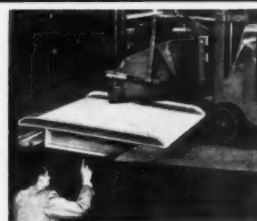
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magcoa

THE OLDEST TRADENAME
IN LIGHT METALS
MATERIALS HANDLING PRODUCTS

MAGNESIUM DOCKBOARDS

For safe, skid-proof truck and rail loading! Rugged but lightweight—one man can position. Engineered to fit your dock and equipment. Most modern economical dockboards available.



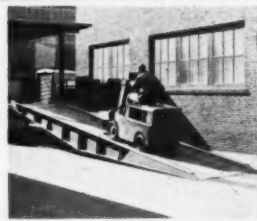
PALLET DOLLIES

Free your lift trucks—end loading bottle-necks! Magnesium—light and durable—at no premium. Magcoa rollers give total maneuverability. 18 standard sizes—capacities to 4000 lbs.



PORTABLE YARD RAMP

Solve your ground level loading problems! 32 std. mobile models—capacities to 100,000 lbs. Engineered to accommodate all equipment, load and height requirements.



Write today!

MAGNESIUM COMPANY OF AMERICA
195 S. E. 10th Ave. Tuxedo 7-8117 Hialeah, Florida

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MATERIAL HANDLING ENGINEERING

for Industry, Inc.

Osterhus, formerly vice president-engineering, joined the company in



Osterhus



Hood

1942. Hood, who was project manager, joined the company in 1951.

Hewitt-Robins Appoints Cleveland District Manager

J. E. Van Stone has been appointed Cleveland district manager for Hewitt-Robins Inc. He was formerly in charge of sales in the Salt Lake City area.



Van Stone

In his new capacity, he has responsibility for the marketing of the company's conveyor machinery, power transmission equipment, and industrial rubber products.

Continued on page 112



with **TEMP-R-TAPE®**

Temp-R-Tape eliminates sticking problems and undesirable accumulations. No materials, even those of a sticky, or viscous nature will adhere fast to its slick, wax-like TEFLON surface. Pressure-sensitive . . . it's easy to apply . . . easy to remove . . . reduces the down time involved in sprayed or baked-on Teflon surfacing. Temp-R-Tape has a useful temperature range of -100°F to 500°F. It's odorless, non-contaminating, non-absorbing and durable.

NON-STICK USES: heat sealing bars; forming plates, dies and bars; labelling rollers; chutes; hoppers; gussets; fins; guide rails.

AVAILABLE FROM STOCK: 1/4" to 2" widths, 18 yd. and 36 yd. rolls and 12" widths on liner by lineal yd. Special roll widths slit to order. Sold through distributors.

FREE SAMPLE and folder — write, phone or use inquiry service.

ELECTRICAL AND INDUSTRIAL SPECIALTY TAPES



CONNECTICUT HARD RUBBER CO.

*duPont TM

Main office: New Haven 9, Connecticut

Tubar HYDRAULIC PALLET LIFT TRUCK

HIGH QUALITY! VERSATILE!

4400 lbs. Capacity
F.O.B. Factory **\$395.00**

MODEL 44

Specifications

Load Capacity 4400 lbs.
Fork height from floor
..... Lowered 3 1/4"
..... Raised 8"
O. A. Width 23 1/2" or 27"
Fork Length 36", 42" or 48"
Fork Width 6"
*Steer Wheels 8x2
*Load Wheels 3x3
Steering 180°

*Std. wheels are steel, floorsaver wheels optional at additional cost.

Ruggedly built, designed for hard usage. Fully automatic, forks are raised by pumping tow handle. Entry rollers in the end of forks facilitate easy entry into a pallet. Highly maneuverable truck pivots 90° in either direction. Can be used with single or double faced pallets.

This model is furnished with your choice of 36", 42" or 48", fork lengths and 23 1/2" or 27" overall fork widths at no extra cost.

There's a TUBAR man near you . . . write to:

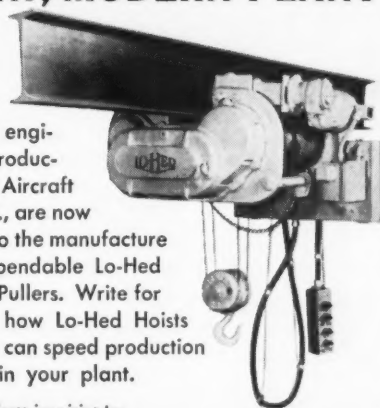
UHRDEN, INC.

DENNISON

OHIO

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AE LO-HED® HOISTS NOW IN PRODUCTION IN A NEW, MODERN PLANT



The advanced engineering and production facilities of Aircraft Armaments, Inc., are now being applied to the manufacture of rugged, dependable Lo-Hed Hoists and Car Pullers. Write for full details on how Lo-Hed Hoists and Car Pullers can speed production and cut costs in your plant.

Please address inquiries to:



**AE INDUSTRIAL DIVISION
AIRCRAFT ARMAMENTS, INC.**

Post Office Box 6853, Baltimore 4, Maryland

CLEVELAND DISTRICT: A.E. Company, 1157 Leader Bldg., Cleveland 14, Ohio
N. Y. DISTRICT: AE Industrial Division, 1 Exchange Place, Jersey City 2, N. J.

Circle 8 on Reader Service Card

JARKE MODULAR STORAGE SYSTEMS

Increase Storage Efficiency... Save Time... Cut Costs

**"MINI-MODULE"
PRE-FABRICATED
STORAGE RACKS**

Easy
To
Handle
•
Quickly
Set Up
Or Taken
Down



2500 lb. cap. Unit
\$6.30 each

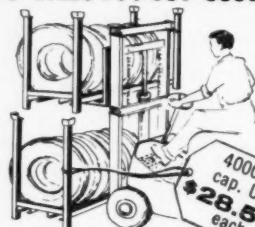
For Permanent Or Temporary Storage

Jarke Mini-Modules give you storage when you want it, where you want it. Easily set up or taken down, no bolts, no tools, no fittings. Special "nesting" caps provide fast stacking and insure rigid, no-slip interlocking tiers. Sturdy steel construction. Lightweight. Four standard sizes. Send for details now!

JARKE
MANUFACTURING COMPANY

6333 Howard St.
Chicago 48, Illinois

MODULAR STORAGE SYSTEMS FOR METAL INDUSTRY • STEELMOBILE



WIRE COIL RACKS

Designed for stacking coiled material, these racks have four-way entry for fork truck, open ends for ram-type deposit of coils. Nesting caps insure fast easy stacking. Heavy-duty steel construction.

4000 lb. cap. Unit
\$26.50 each



PORTABLE BAR RACKS

Unique crane grab permits load centering and rapid fool-proof engagement. Automatic grab also available. Assorted standard sizes. Specials to order.

Std. Unit
\$36.90 each

INDUSTRY

NEWS

Brooks & Perkins, Inc. Names Research & Engineering Head

Dr. Stuart T. Ross has been named vice president of research and engineering for Brooks & Perkins, Inc. He joins the company from the Aeronautic Division, Ford Motor Co. He has over 15 years' experience in materials research and engineering.



Ross

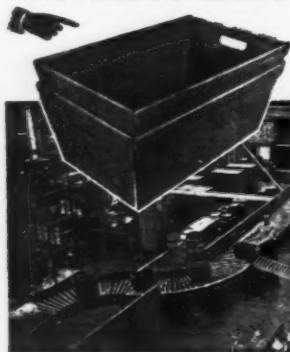
Dr. Ross has several patents concerning the coating and heat treatment of aluminum and magnesium base alloys.

Oxy-Catalyst Establishes Industrial Department

An industrial department, responsible for the marketing of all its industrial products, has been formed by Oxy-Catalyst, Inc.

Named manager is C. T. Hayes. He has been with the company in various engineering and sales positions since 1951.

This uncommon carrier...



is rapidly becoming the common answer to materials handling problems

HERE'S HOW DOUGLAS AIRCRAFT USES CONVOY #T-31 TOTE BOXES TO SPEED COMPONENTS TO ASSEMBLY

We make many standard size tote boxes... nesting, stacking and vertical sided... but we'll custom-make any box your product or use calls for.

Special sizes and shapes are economically produced by our "Chem-Board" process of rigidizing hi-test corrugated board to remarkable strength.

More and more famous name industries are using Convoy Tote Boxes. Try us.

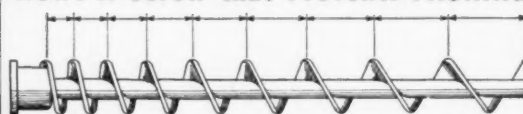
CONVOY, INC.

CANTON 6, OHIO
P. O. Station B, Box 216-F



Circle 31 on Reader Service Card

Now! A Screw that Prevents PACKING



Patent Pending

Progressive Pitch Conveyor Screw

With this uniquely designed and constructed screw, material can be conveyed *without packing*! Each pitch is progressively larger so the material is moved forward at a greater speed per revolution and won't bind or clog.

The PROGRESSIVE PITCH CONVEYOR SCREW can be produced for the handling of any material using a spiral shaft conveyor. It can be made in any pitch, diameter and capacity, with right or lefthand flights, to your specifications. 10,000 different combinations of pitches, diameters and sizes are possible. Some standard sizes in stock in different cities.

Install a PROGRESSIVE PITCH CONVEYOR SCREW to replace an old one or to use in your new systems.

**NEW FOLDER THAT TELLS
ALL—SEND FOR IT TODAY!**

Call or write so we may discuss your conveyor needs or problems.

WORLEY EQUIPMENT, INC.

2301 N. Knox Avenue • Phone Albany 2-2830
CHICAGO 39, ILL.

Circle 139 on Reader Service Card
MATERIAL HANDLING ENGINEERING

National Vulcanized Fibre Completes Fisher Merger

National Vulcanized Fibre Co. has merged with Fisher Mfg. Co., Inc. of Hartwell, Ga. This is the second acquisition by National in 18 months. In 1959, it acquired Parsons Paper Co. of Holyoke, Mass.

Terms of the purchase called for an exchange of 17,000 shares of National Vulcanized Fibre stock for 1,000 shares of Fisher stock.

Logan Co. Appoints Directors For New York Operations

Richard B. Frodge and James C. Adams will direct New York operations for the Logan Co.

Frodge joins Logan with 15 years experience in the conveyor business.



Frodge



Adams

Recently he headed his own engineering firm of conveyor specialists.

Adams has been a sales engineer for 12 years with a broad knowl-

edge of industrial processes, including electronics.

Geer Named Chief Engineer

Erickson Power Lift Trucks, Inc. has appointed Henry G. Geer its chief



Geer

engineer. He is in charge of design and engineering of all Erickson standard and special equipment, including lift trucks, platform trucks, and job-tailored material handling equipment.

Geer was formerly a project engineer in special machines design at Minnesota Engineering Co.

Production Service Co. Forms Material Handling Division

J. A. Gibbons has been named general manager of Proscio Equipment Co., a new division of Production Service Co., Cleveland. The new company will specialize in the sale of material handling and related equipment in northern Ohio.

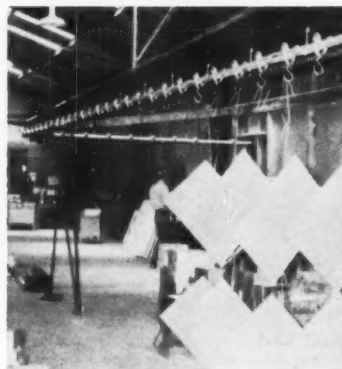
Hyster Co. Appointments

Two key positions at Hyster Company's general offices in Portland,

Circle 149 on Reader Service Card

ECONO

Overhead Trolley Conveyors



For

Retailers - Wholesalers - Manufacturers

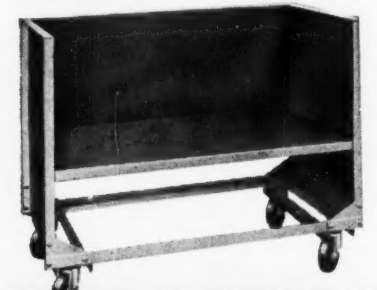
To Aid The Above In

**STORAGE - PROCESSING
TRANSPORTATION
ASSEMBLY OPERATIONS**

Investigate today this versatile, efficient low cost conveyor.

Write for Literature and Prices

**ECONO MFG. CO.,
Celina, O.**



VERSATILE

ALL-PURPOSE TRUCKS

by **WILDER**
FIRST IN QUALITY

27 standard style and 150 standard size platform, shelf, tray, rack, stake, bin, box and table trucks to select from. Special sizes can be furnished.

Write for Complete Information on Wilder's Full Line of Production Handling Equipment

WILDER MFG. CO., INC.
PORT JERVIS, NEW YORK

Circle 137 on Reader Service Card

June, 1961

LOAD IT FAST

WITH

**BAUGHMAN
MODEL 175**

BUCKET ELEVATOR

*For Free Flowing Cement
or Similar Materials
Totally Enclosed
for Weather Protection*

High-speed material handling with years of dependable service is offered by this sturdy Baughman bucket elevator. Buckets, in 11" to 15" widths and 12 or 10 gauge steel, are available chain-mounted or belt-mounted, spaced or continuous. Elevator is sectionally constructed to your required length. V-belt power drive to sealed worm gear reduction case; heavy roller chair final drive. Write for Bulletin A-299

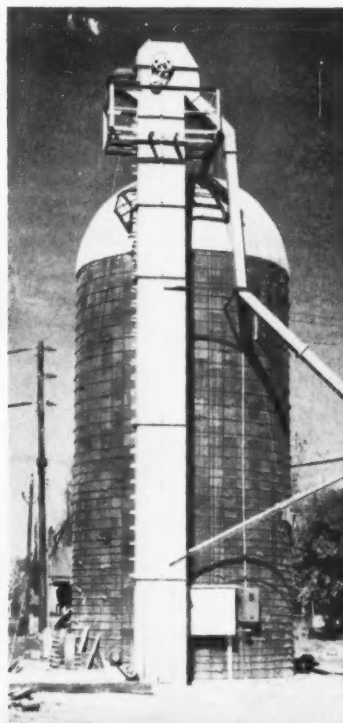
A few choice distributorships available



**BAUGHMAN
MANUFACTURING CO., INC.**

315 SHIPMAN RD. • JERSEYVILLE, ILLINOIS

Circle 13 on Reader Service Card

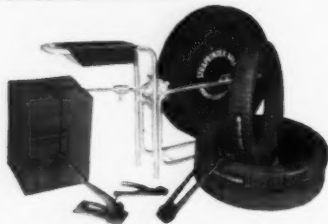


6128

(advertisement)

NEW PRODUCTS

FLAT STRAPPING COMBINATION UNIT



Model 00-1915 — Save up to 15% with this mobile unit that includes everything needed to strap anywhere in your plant. Write: A. J. Gerrard, 402 East Touhy Avenue, Des Plaines, Illinois.

Circle 22 on Reader Service Card

TRANSLUCENT, VINYL REINFORCED TAPE



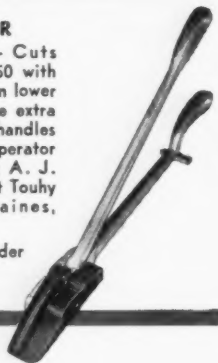
Pressure sensitive tape with exceptional strength, high adhesion, superior elongation. Ideal where shock is great, on rough edges, or where necessary to read under tape. Write: A. J. Gerrard, 402 East Touhy Avenue, Des Plaines, Illinois.

Circle 23 on Reader Service Card

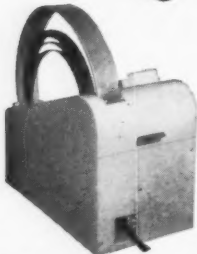
STRAP CUTTER

Model 550 — Cuts strap to 2" x .050 with less effort. Legs on lower handle provide extra stability. Long handles give greater operator safety. Write: A. J. Gerrard, 402 East Touhy Avenue, Des Plaines, Illinois.

Circle 24 on Reader Service Card



DIAL-A-BAND DISPENSER



Model 440 Set the dial and press a button — new dispenser automatically feeds and cuts exact length and number of straps needed. Write A.

J. Gerrard, 402 East Touhy Avenue, Des Plaines, Illinois.

Circle 25 on Reader Service Card

INDUSTRY NEWS

Oregon have been filled. William H. Peterson has been named manager, training and planning; and Charles A. Richmond has been appointed personnel manager, general office group.

Bemis Names Personnel Director

E. F. Muehlhausen is new director of personnel for Bemis Bro. Bag Co. He succeeds F. V. Deaderick, vice president and director of personnel who retired Jan. 31.



Muehlhausen

Muehlhausen has been with Bemis since 1943. He was transferred to the general personnel department in St. Louis in 1953.

Connell Named Acme Steel Division Sales Manager

Hugh D. Connell has been named division sales manager, Acme Steel



Connell

Products Division of Acme Steel Co.

Connell joined Acme Steel in 1947 as a sales engineer. He became manager of project engineering in the New Products and Improvement Division in 1956. He was named manager of engineering sales in 1960. He will also manage the division's field sales organization.

Hewitt-Robins Sales Post

C. L. Frost has been appointed manager of distributor sales of Hewitt-Robins, Inc. Frost was formerly a regional sales manager, and the company's advertising manager.

Hyster Co. Makes International Appointments

Three district representative assignments have been made within Hyster Company's International Division.

Frank W. Burdell will headquarter in Singapore, cover the Far East; Russell L. Quesada will reside in Bogota, Colombia; and cover northern South

MOTORIZED COIL LIFTER SAVES STORAGE SPACE... HANDLES COILS FASTER... SAFER

*1 Lifter Handles Both Wide
and Narrow Coils With
Same Speed and Economy*



This C-F Coil Lifter, under control of the Crane operator handles hundreds of coils a day in a large mill... wide, narrow, and of varying tonnage. Fast, infinite adjustments of the motorized legs permit quick pick-up and set-down. Legs can be opened to any width and held... no need to open to maximum width to handle narrow coil. Maximum of 12" required between coils of any width—saves storage room.

Positive tong grip on coil tightens as lift is made... insures safe handling. Made in motorized models for crane cab or pendant operation as well as manual types with chain wheel, in capacities from 3 tons up. Powered Rotating Heads available. Opening ranges to suit your requirements. Write for Bulletin and complete information.

CULLEN-FRIESTEDT CO.

1320 South Kilbourn Avenue • Chicago 23, Illinois

Circle 147 on Reader Service Card

MATERIAL HANDLING ENGINEERING

America; and Peter K. Bourbeau will headquarter in Johannesburg, South Africa, cover South and West Africa.

Clarke's Power Sweeper Division Names Sales Manager

C. J. (Dixie) Madeck has been appointed sales manager of Clarke Floor Machine Co's Power Sweeper Division. He was a former field representative.

Yale & Towne Names Regional Sales Manager

Edward D. Gorton and Samuel S. Rockwood have been appointed Eastern and Western regional sales man-



Gorton



Rockwood

agers, respectively, for the Trojan tractor shovel line of The Yale & Towne Mfg. Co.

Gorton has been with Y & T since 1957. His new headquarters will be at the Trojan Division central offices in Batavia, New York. Rockwood

comes to Y & T from the Thew Shovel Co. He has established his headquarters in Portland, Oregon.

Reidy Appointed Manager of Equipment Tire Sales

Robert J. Reidy, product manager for truck-and-off-the-road tires since



Reidy

1957, has been appointed manager of equipment tire sales for B. F. Goodrich Tire Co. He succeeds Russell E. Montgomery. Montgomery was recently named managing director of B. F. Goodrich Australia, Pty. Limited.

Reidy joined B. F. Goodrich as a stenographer in the labor relations department while attending the University of Akron. He later worked in the company's chemical research laboratory.

American Viscose Opens Southwestern Sales Office

American Viscose Corp., Philadelphia, has opened its first Southwestern District Sales Office for its new Industrial Packaging Department in Dallas. District manager is Philip Raley.

The Dallas office is the 9th district sales office opened in major cities by the department since Avistrap was first announced early in 1960.

Faultless Caster Forms New Section

Faultless Caster Corp. has established a new product development section. Named engineers in the new



Butsch

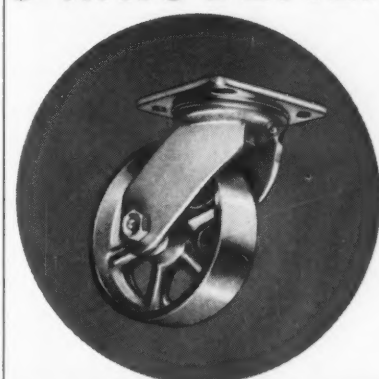


Stollman

section are Richard W. Butsch and Irving Stollman.

Butsch has been with the company 11 years. Two years ago, he was promoted to sales manager of the Hardware Division. Stollman joined the company as a special consultant last summer. He formerly worked as an industrial designer for Chevrolet Division of General Motors, and for the Ford Motor Co.

3 WAYS BETTER



ALBION'S NEW SERIES 16 CASTERS

Another completely new . . . completely practical Albion industrial caster series developed to serve a broader variety of applications. Conservatively rated as medium duty casters, yet constructed for longer, better . . . heavy duty, maintenance-free service. They're three ways better, and here's why:

1. MORE CAPACITY

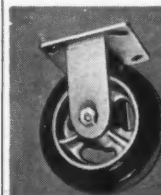
The new Series 16 Casters offer Albion's finest, most dependable construction advantages such as "cold-formed" steel yoke base and top plate with heat-treated raceways for smoother, lasting maneuverability under greater capacity loadings.

2. MORE WEARABILITY

Albion's Series 16 Casters are available in nine different high capacity or floor protective wheel types in diameters of 3 1/4" to 8" with a capacity range of 140 to 900 lbs. per wheel. Sound engineering, quality materials and craftsmanship plus Albion's many outstanding construction features are combined to afford a caster that will last and last.

3. LESS COST

Although built to Albion's exacting quality standards, the Series 16 cost you far less than most ordinary casters of the same size or capacity ratings. And . . . they are available—all models—right now!



RIGID CASTERS
Albion's Series 16 Casters are available as matching rigid models in 9 wheel types—3 1/4" to 8" wheel diameters.

Remember . . . if you want longer, better service plus caster versatility at a savings you can count—be sure to get all the facts and figures from Albion.

Write—wire or phone today for your copy of the new illustrated specification sheet on Albion Series 16 Casters.

ALBION INDUSTRIES, INC.

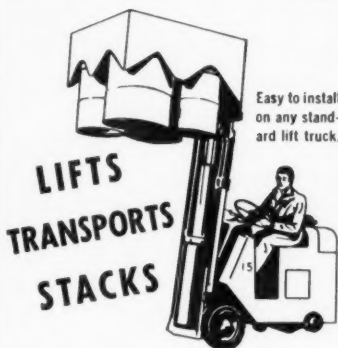
Albion



Michigan

Circle 3 on Reader Service Card

Safe DRUM Handling



Easy to install on any standard lift truck.

DRUM CARRIER

- Alignment compensator automatically places drums into gripping position.
- Carrier loads over drums.
- Gravity action causes gripping shoes to securely hold load.
- Release can only be effected by application of hydraulic pressure.
- Standard models handle standard 55-gallon drums in diameters from 22 1/4" to 24 3/4", and permit 6" variation in height in same load.
- Special types available for Monorail, Crane, and other applications.



TRAY-HART CYLINDER CARRIERS

- All sizes and types of cylinders handled with ease.
- Quantity according to lift truck capacity.
- Write for complete information

Manufactured by

WALZ & KRENZER, Inc.

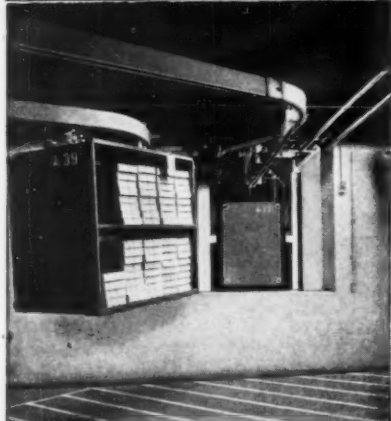
22 Flint Street, Rochester 8, N. Y.

Circle 134 on Reader Service Card

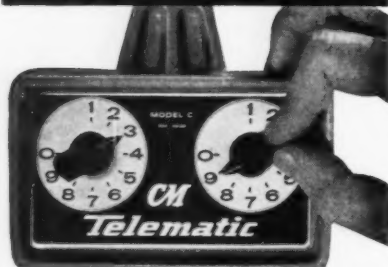
June, 1961

Power-Flex®

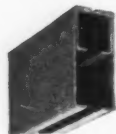
POWER AND FREE
OVERHEAD CONVEYOR SYSTEM*



WITH **TELEMATIC**
AUTOMATIC DISPATCH CONTROL



• Simply set dials and Telematic guides carrier to any station in system



POWER RAIL
FREE RAIL

Employs exclusive unitized "over and under" power and free rail which permits simple switching to right or left as desired.

Power-Flex is designed for automated materials forwarding applications in industrial plants, distribution centers, service buildings and department stores. The most economical system available for loads up to 600 lbs. per carrier. Savings in actual installations range from 25% to 60%.

*Systems in service for your inspection.

Engineered to your very specific requirements.

SEND FOR BROCHURE

Inquiries from your engineers or consultants welcomed.



COLUMBUS MCKINNON CORPORATION

Conveyor Division
TOMAWANDA, N. Y.

Circle 30 on Reader Service Card

INDUSTRY NEWS

Distributor News and Company Reps

Thomas Truck & Caster Co. has made three territorial appointments. Lee H. Long Associates, Inc., Wellesley Hills, Mass. now cover the New England trading area. The Murray Equipment Co., Denver, are representatives for Colorado and south-eastern Wyoming. S. L. Cooper & Associates, Washington, D.C. are industrial and government representatives.

Saginaw Products Corp. has named R. J. Benson as New York district manager. He is in charge of the company's new eastern sales office at 560 S. Broadway, Hicksville, Long Island, N.Y.

The Raymond Corp. has named Robert Abel & Co., Inc. distributor for its industrial trucks in the Boston area.

Alvey Conveyor Mfg. Co. has added two material handling engineers to the staff of its Westboro, Mass. office. They are Dan Uebelhack and Bruce LaPierre. The office serves the New England states.

Wayne Mfg. Co. has appointed Harold C. Clark as Chicago branch manager. He replaces Ken L. Harvey who has been transferred to company headquarters in Pomona, Calif. Clark is well-known in the heavy equipment industry. He served in sales executive positions for J. I. Case, Gar-Wood Industries and Curtiss-Wright's Diesel Engine Division.

Harnischfeger Corp. of Milwaukee has appointed the Dalworth Machinery Co. of Dallas as dealer for P & H construction and mining products.

K-W Battery Co. has appointed Abernathy & Company as exclusive sales representative for Los Angeles and surrounding counties.

Stanley Steel Strapping, division of The Stanley Works, has appointed Frederic C. Faulkner sales representative in Northern New Jersey. William Paschall will cover most of Arkansas, and parts of Tennessee and Mississippi.

Oxy-Catalyst, Inc., has appointed Otepka Associates, Illinois; The A. A. Betts Co., Southern Ohio and Kentucky; F. R. Magill Co., Western Pennsylvania and West Virginia; Philip E. Chambers, Indiana; John J. Connell Co., Inc., Eastern Missouri and Southern Illinois; and Joseph H. Nook and Associates, Northern Ohio.

SPAN A TRACK

to speed plant traffic



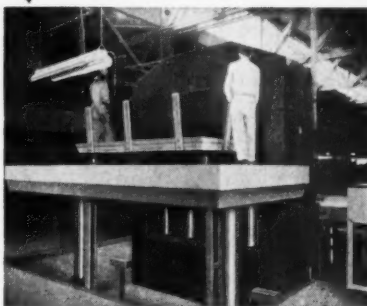
LOWER A TRUCK

for faster loading and unloading



FEED A MACHINE

with greater economy and efficiency



LEVELATOR LIFTS

handle heavy loads at lower cost

Operating on economical oil-hydraulic power, Rotary Levelator Lifts can be used wherever heavy objects must be raised or lowered. Standard models with 6,000 and 12,000-lb. capacities are designed for a wide variety of uses and are stocked for immediate delivery. Special Levelator Lifts in any capacity to several hundred thousand pounds can be engineered to your requirements. Simplicity of design and operating mechanism makes installation easy and practically eliminates any maintenance expense.

Write for Catalog RE-203

Rotary LEVELATOR LIFTS

Manufactured by

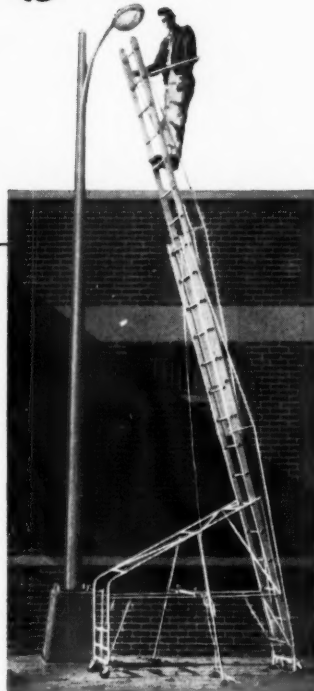
ROTARY LIFT COMPANY

Division of Dover Corporation
1058 Kentucky, Memphis 2, Tenn.
Canadian plant at Chatham, Ontario

Circle 108 on Reader Service Card
MATERIAL HANDLING ENGINEERING

FOR MORE USES...
MORE SAFETY—
BUY

Bally-Hi



Open construction design allows the "Bally-Hi"—a two-stage ladder mounted on a wheeled frame—to move between and over obstacles such as machines—where ordinary ladders can't go. Collapsible outriggers prevent tipping. Reaches heights to 25 ft., anchors to floor firmly, goes through average size doorways when collapsed. Equipped with extra safety and comfort features that contribute to the user's sense of security. "Bally-Hi" may be truck-mounted.

Ballymore "Safety-Step" ladders serve industry.

WITH OR WITHOUT HANDRAILS



For complete details write to
BALLYMORE COMPANY
WEST CHESTER 5, PA.

BALLYMORE
EQUIPMENT FOR WORKING
Safely ABOVE FLOOR LEVEL

CALL YOUR LOCAL DISTRIBUTOR
Circle 11 on Reader Service Card

June, 1961

CLASSIFIED ADVERTISING

Rates: Cost of all ads in this section is \$20 for the first inch and \$15 for each additional inch or fraction. Rates for display ads in this section will be sent on request. All classified advertising is payable in advance.

WIRE STORAGE SKIDS

150 portable stacking racks 72" x 27", capacity 5,000 # wire. All or part, \$12.50 F.O.B. North Carolina.

150 portable pressed steel platforms with folding ends 72" x 25", capacity 5,000 # wire. All or part, \$6.50 F.O.B. Houston.

Vice pres., Kay Manufacturing Corp., 675 Barbey St., Brooklyn 7, N.Y., DI 5-9090.

WANTED

Commissioned Manufacturers' Representatives in packaging field to sell Edg-Pak, a paper covered protector which slips over critical edges or on steel strapping to prevent damage from shipping or in material handling. This new patented product is being promoted by a national advertising campaign. Many areas open for representation. Write Flex-O-Lators, Inc., 131 Locust St., Carthage, Mo., giving your present territory, experience and companies you are representing.

DISTRIBUTORS

During the next five years sales of built-in dockboards will expand at a rate much faster than the rest of the material handling industry. Do you have a good line to meet this need?

We Offer:

Complete line, Powered and Non-Powered

Good sound sales features on each model

An expanding national advertising program.

Competitive Pricing

We Require:

An organization with deep market penetration.

A company who has a desire to take our line and do something with it.

If you feel your company could provide us sound representation, please write MATERIAL HANDLING ENGINEERING, Box 6161.

54* by Crown
VALUE PRICED!



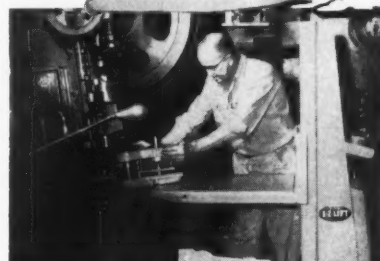
Lifts loads up to
half ton safely,
efficiently. Operates
in narrow aisles.

MODEL H-57



1500 Lb. capacity
includes batteries
and built-in charger.
Lowest price power
lift.

MODEL B-57



Compact, power
propelled, power lift.
Includes batteries
and built-in charger.

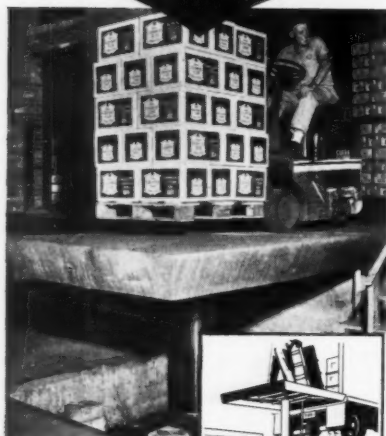
MODEL W-57

*Send for free catalog of 54 Models.

CROWN
CONTROLS CO., INC.
NEARING AVENUE
NEW BREMEN, OHIO

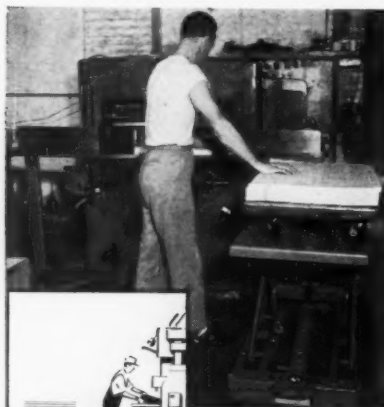
MATERIAL HANDLING DIVISION
Circle 34 on Reader Service Card

GLOBE Oilifts SPEED HANDLING



**Platform Oilift
paves way for
palletized system**

Manual stocking and packing of beer shipments has been eliminated by use of Globe Oilift which transfers loaded fork lift truck from one floor level to another. Oilift shown has 6000 lbs. capacity, lift of 4' 10".



**Automatic
stock pile
leveling**

... keeps work supply always at machine feeding level. Eliminates lifting, permits large quantity feeding, less time for feeding. Portable, self-contained unit easily relocated. Capacities to 6000 lbs., lifting heights to 47".

**WRITE
TODAY**

for complete information on GLOBE Oilifts. Globe Hoist Company, East Mermaid Lane at Queen Street, Philadelphia 18, Penna.

GLOBE

Oilifts

PLANTS: PHILADELPHIA • LONG BEACH, CALIF.

Circle 50 on Reader Service Card

118



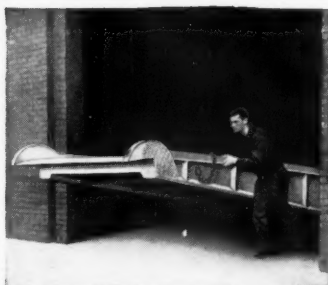
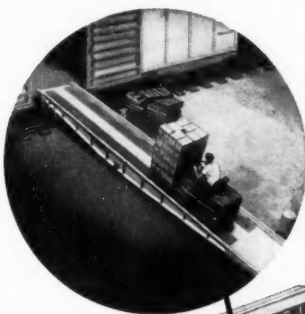
ADVERTISERS INDEX

Acme Chain Corp.	38	Island Equipment Corp.	93
Acme Steel Co.	36 & 37	Jarke Mfg. Co.	112
Aircraft Armaments, Inc.	111	Joy Mfg. Co.	34
Albion Industries, Inc.	115	Joyce Cridland Co.	92
Allis-Chalmers	41	Kelley Co.	34
Alvey Conveyor Mfg. Co.	45	F. H. Langsenkamp Co.	91
American Metal Products Co.	109	G. B. Lewis Co.	94
Automatic Transportation Co.	4 & 5	Lift Trucks, Inc.	90
Baker Industrial Trucks	54	Louden Machinery Co.	31
Ballymore Co.	117	M-D Blowers, Inc.	8
Barrett-Cravens Co.	98	Magline Inc.	Cover III
Bassick Co.	97	Magnesium Co. of America	11
Baughman Mfg. Co.	113	Maico Electronics, Inc.	16
Bostitch, Inc.	47	Manning, Maxwell & Moore, Inc.	10
E. W. Buschman Co.	110	Marietta Concrete Corp.	83
Caterpillar Tractor Co.	13	Mathews Conveyor Co.	12
Chainveyor Corp.	6	Merrill Brothers	26
Chisholm-Moore Hoist Div.		Molded Fiber Glass Tray Co.	44
Columbus McKinnon Corp.	85	Monarch Rubber Co.	21
Clark Equipment Co.		Motec Industries, Inc.	35
Construction Mach. Div.	39	Moto Truc Co.	50 & 51
Cleveland Container Co.	32	National LP-Gas Council	77
Columbus McKinnon Chain Corp.		Nolan Co.	91
Conveyor Div.	116	Nutting Truck & Caster Co.	30
Colson Corp.	84	Samuel Olson Mfg. Co.	94
Connecticut Hard Rubber Co.	111	Raymond Corp.	42
Convoy, Inc.	112	Revolator Co.	46
Corlett-Turner Co.	92	Richards-Wilcox Mfg. Co.	15, 79
Crane Hoist Engineering Co.	90	Robbins & Myers Inc.	7
Crown Controls Co.	117	C. E. Robinson Co.	40
Cullen-Friedstedt Co.	114	John A. Roebbling's Sons Div.	
Cyclone Fence Dept.		The Colorado Fuel & Iron Co.	107
United States Steel	33	Rotary Lift Co.	116
Darnell Corp.	78	Roura Iron Works, Inc.	26
Dempster Bros.	87	Signode Steel Strapping Co.	19, 79
Derby Sealers, Inc.	100	Silent Hoist & Crane Co.	104
Diamond Chain Co.	27	Spencer Chemical Co.	68
Disogrin Industries, Inc.	89	Standard Conveyor Co.	101
Duct-O-Wire Co.	90	Stic-Klip Mfg. Co.	65
J. H. Dunning Corp.	93	Storack Corp.	52
E. I. DuPont De Nemours & Co., Inc.	105	Sturdi-Bilt Material Handling Div.	
Economy Engineering Co.	108	Union Asbestos and Rubber Co.	23
Econo Mfg. Co.	113	Towmotor Corp.	11
Electric Storage Battery Co.		Uhrden, Inc.	111
Exide Industrial Div.	22	Union Metal Mfg. Co.	88
Equipto Div.		Union Steel Products Co.	2
Aurora Equipment Co.	49	Unit Crane & Shovel Corp.	103
Equipment Mfg. Inc.	43	U. S. Rubber Co.	95
Euclid Crane & Hoist Co.	92	U. S. Steel Supply Div.	
Fastener Corp.	102	United States Steel	99
Faultless Caster Corp.	Cover II	Walz & Krenzer, Inc.	115
Flexible Steel Lacing Co.	96	Weighing & Controls, Inc.	96
A. J. Gerrard & Co.	114	West Bend Equipment Corp.	110
Globe Hoist Co.	118	Wilder Mfg. Co.	113
Goodall Rubber Co.	86	Winslow Government Standard Scale	
B.F. Goodrich Co.	28 & 29	Works, Inc.	90
Goodyear Tire & Rubber Co.	1	Worley Equipment, Inc.	112
Heil Co.	25		
Frank G. Hough Co.	53		
Hyster Co.	9		

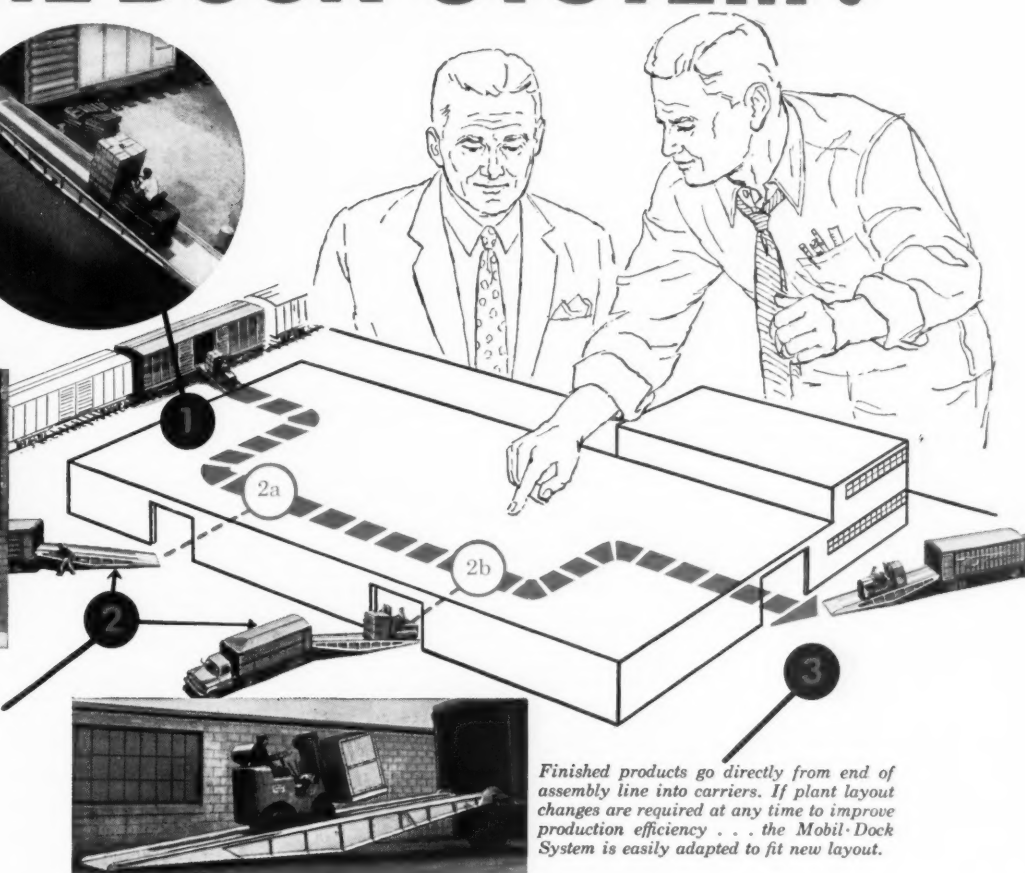
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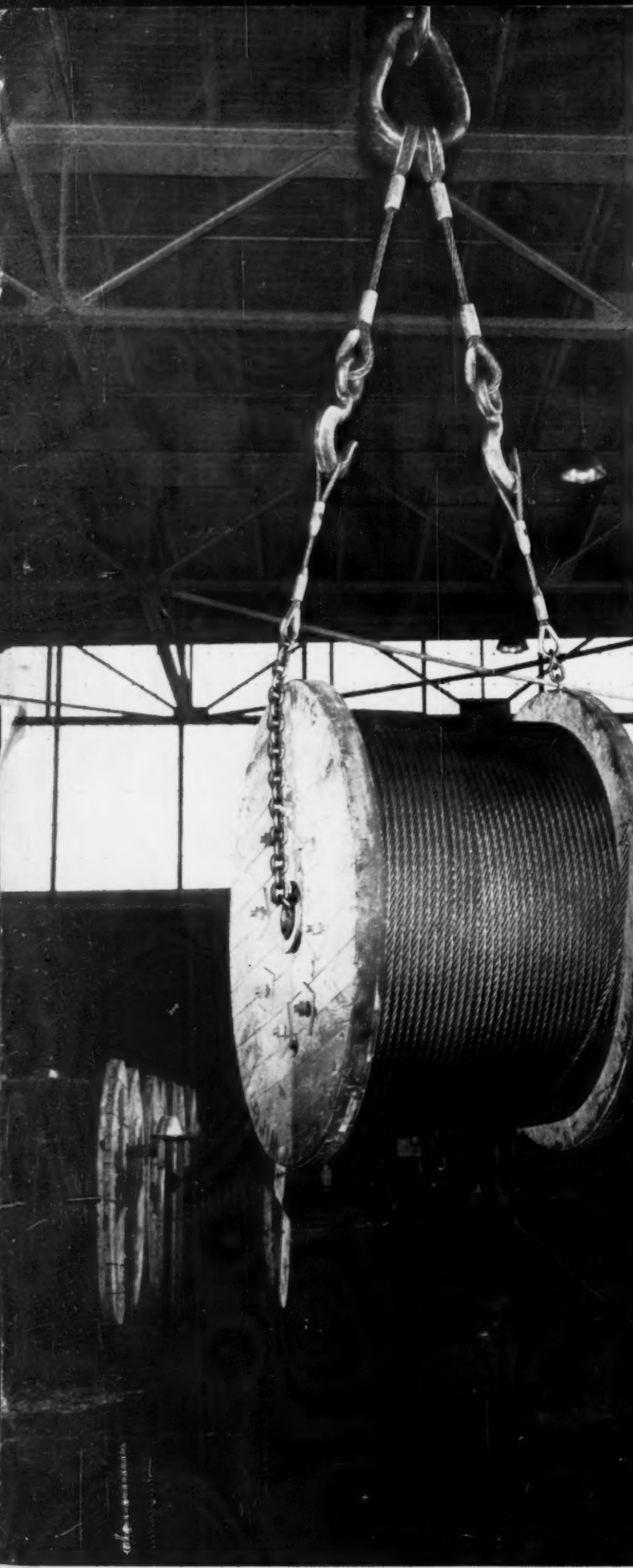
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